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REPORT ON THE QUESTION OF FIELD EXPERIMENTS, WITH SPECIAL REFERENCE TO THE EXECUTION OF TAPPING EXPERIMENTS ON ESTATES

PREFATORY NOTE.

The following report has been written by Mr. G. E. Coombs, Economic Botanist, F. M. S. at the request of the Advisory Committee, Department of Agriculture. It was felt to be desirable to present to practical planters a clear statement of the general principles which should govern field experiments. It is hoped that this report will have the effect, not only of stimulating interest in tapping and other experiments, but also of elucidating the scientific stand point in such matters, and giving an indication of what is essential to ensure that experiments may have a permanent value.

Signed E. S. Hose,
Ag. Director of Agriculture.

Introduction.

Field experiments have until comparatively recently been characterized by one or both of two serious errors, either they have been executed without a preliminary enquiry into the errors in material and method or, these facts being known it has been left to an inadmissible speculative chance that they may "average up." Further, generalizations have been made on the results of single experiments and in this respect the work which has been done towards the elucidation of tapping problems possibly forms no exception to the rule.

The present position is such that we can give a verdict on very drastic tapping and we can do likewise for very conservative tapping, but we are quite unable to give a verdict as to the virtues of certain systems which fall into an intermediate group as for example one cut on $\frac{1}{4}$, $\frac{1}{3}$, or $\frac{1}{2}$ of the circumference of the tree with similar period for bark renewal, and the problem of a precise decision as to which is the best of these systems, all in point of fact arrived at empirically, still awaits solution.

The following note discusses the guiding principles which should govern field experiments and it is hoped that it may be of service in shewing in a way that is easily understood, that field experimentation is a difficult matter and that many precautions are necessary to ensure that the results obtained may be of general value and stand the test of time.

Those who may be disposed to undertake experimental work in tapping, will do well to make an attempt to follow the arguments put forward, for it is only by an intelligent appreciation of what is actually demanded that a correct idea may be obtained of the possibility of giving the supervision required to ensure success.

The particular form of experimentation outlined under III b, is of specific use for Tapping Experiments only. The writer of the report in no way desires to press the claims of this method until it has been tried under rigorous control.

In the execution of experiments on the lines laid down in this report, estates may count on the cooperation of this Department.

I. General Method of Field Experimentation.

Volume IV. No. 8 of the Agricultural Bulletin contains a paper on "Field Experiments and the Interpretation of their Results" giving in detail the points of argument which underlie a general method of field experimentation, which method properly executed, will lead to results of reliability and general value. It is not proposed to enter into the details of the matter here—this can only be done by numerical illustration of values obtained in actual experiment—except to say, that the method is really nothing particularly new, being in fact one of "scientific averaging" its value lying in the fact that by taking advantage of the method of averaging, it is possible to minimize or eradicate the initial errors in material on which experiments are being conducted, leading to the attainment of a result which accurately demonstrates the effect of altered conditions.

II. The Application of this Method to Tapping Experiments.

(*a*) *The analysis of initial errors*:

Let the large block shewn in Figure I. represent an area of virgin rubber which it is thought may be suitable for use in Tapping Experiments. The considerations which decide this are, that the land should be flat and uniform in nature as shewn by careful analysis, and that it should be evenly planted with trees of "uniform" growth. Granted these two things, the manner which suggests itself for the execution of an experiment involving the testing of different Tapping Systems is, that the land be divided into blocks of convenient size, individual blocks and series of the same being given the different tapping treatments.

Now suppose we take any three small blocks of this rubber as for example 1, 2, and 3 of Figures 1 and 2 and consider their uniformity. We are immediately forced to speculate. We do not know that one block of trees does not contain a disproportionate number of trees inherently better than others, trees which will give greater yields of latex by virtue of their inborn nature. Further, although we may be satisfied in a general way of the uniformity of the soil conditions, we cannot be sure that local patchiness does not exist, and in consequence cannot be sure that one block of trees is not at an advantage, as compared with others, from the point of view of nutrition. Thus our start may be faulty in that inequalities may exist. Errors may be there undetected.

(*b*) *The minimizing of initial errors by averaging.*

Something has to be done to counteract these errors in order that we may have common ground on which to start the testing of one System of Tapping against another, and it will be seen that a very convenient method of achieving this end, is by taking advantage of the possibility of averaging. Thus if a number of equal sized blocks be taken for each of three systems disposed as in Figure 2, the average "quality" of each set of "populations" will tend to approximate and soil error will become averaged. So much for error in our material as such. The errors which may creep in in the actual execution of the experiment are two-fold. We have on the one hand "coolie errors in tapping" and on the other, errors which may be involved in the separate collection of the latex from any particular block or set of blocks, and factory errors which may occur in the subsequent treatment and record of rubber produced. The two latter may be conveniently classed as

"manipulation errors" and are remediable at the hands of careful supervision. The "coolie error in tapping" can perhaps be minimized by the method similar to that used above, that is by averaging, for the rotation of coolies is really nothing more than an arrangement whereby the effect of the individuality of the tapper becomes spread over all the blocks so that each set of blocks reserves similar average treatment.

(*c*) *Precision obtainable: the extent to which we should average.*

The question at once arises. To what extent shall be average? This depends entirely on two points (*a*) the degree of precision which we are aiming at in our final result and (*b*) the actual measured amount of variation found in our material under uniform conditions. Thus, in the particular case under consideration, it will depend on whether we wish to detect 5%, 10% or differences of less or greater magnitudes, and on the nature of our blocks of rubber as shewn in terms of the yield of rubber they produce under uniform treatment. It will be appreciated that the detection of smaller differences will demand the averaging of a large number of records, and similarly for the detection of any difference, the greater the degree of variation shewn in our initial examination, the greater will be the amount of averaging necessary. Hence the magnitude of the experiment, *i.e.*, the amount of land under experiment is entirely dependent on these two factors, the latter of which is quite unknown. Reference to the paper mentioned above will shew how the planning of experiments for two field crops, Rice and Coconuts has been made on a basis of certain preliminary records actually found by experiment. The actual results given will illustrate the pitfalls which may occur in taking areas of too small dimensions; they will indicate that beyond a certain point it is of no advantage to take large blocks of land under the crop as compared with smaller blocks, and they will shew how the whole work may be useless if an inadequate number of blocks on which to base average records is taken. This latter point is of particular interest in considering the value of many previously recorded results for rubber.

(*d*) *The Nature of the preliminary work which may form the basis of future Tapping Experiments.*

The points which have to be decided in the planning of our tapping experiments are the following:—Of what size shall our blocks be, and how many of them shall we systematically arrange over our land, in order to be within a certain range of accuracy.

The former is perhaps decided for us in estate practice, and the size of a coolie's task seems to be the unit. As concerns the latter, the larger the number the more will be the supervision required, the smaller the number the less accurate will be the result, and, if the number be reduced to very small proportions the whole result may be worthless and the work were better not started. We proceed to decide the matter by taking the yields of " comparable " blocks of rubber under as far as possible identical treatment. We require a planted area with uniform soil conditions carrying trees of uniform growth evenly planted, and we require records in monthly yields of a number of equal sized blocks of trees under the same system of tapping (the system matters not) with all possible precaution taken respecting " coolie error " and " manipulation errors " over a period of not less than twelve months.

(*e*) *Ideal Preliminary Experiment.*

The ideal preliminary experiment would be one enabling us to obtain records per block per month over some 200 single acre blocks disposed as in Figure I. tapped on any system according to the wish of the management of the estate on which the records might be collected, and when perhaps uniformity to a system may be an important point. This, however, seems impossible. It entails what in estate practice with the present paucity of european supervision amounts almost to impossibility, namely the individual coolie tapping and collecting from several blocks of trees. It appears therefore that we must be satisfied with the records from blocks of about four acres each. These records obtained, we can proceed. It would be of great value to have results of this nature for flat land and for hill slope.

(*f*) *Subsequent procedure.*

A point which should be particularly emphasized is, that in the actual execution of tests of Tapping Systems on the basis of the facts disclosed under (*c*) above, the trees of the area which have been used for the collection of the data are unsuitable for further *tapping experiments.* It might be asked, why should not the experiment proceed as follows? Why not take the blocks and run a preliminary trial over them, massing all the latex from the 1's, 2's and 3's for a certain period, subsequently subjecting the sets of blocks to different tapping treatments. It might appear a logical assumption to assume that, if this be done the final results could be discounted by so much, in the light of the results of the preliminary trial. This will not give us very great precision. If the preliminary yields are at all widely divergent, it can only

be a matter of conjecture as to the amount which may be definitely put down to the effect of the altered treatment. Further, the actual practical difficulty of testing certain systems as for example a system involving the use of one third the circumference of the tree after a protracted preliminary trial on one quarter will be appreciated. We therefore see that the preliminary data will strictly speaking only be of service in the actual planning of *tapping experiments* in that they will provide the basis for the execution of accurate tapping experiments on virgin rubber.

(*g*) *The manifold value of the preliminary data.*

Although this area has this very restricted use in so far as tapping experiments are concerned, this is by no means its only utility. The data obtained therefrom are of manifold use. They form the working basis for planning manurial trials and cultivation trials in general, and the area itself may be put to subsequent use in experiments of either of these categories, or, the area may be reserved for the all important matter of testing the value of prunning and thinning out. The point which it is hoped these arguments will emphasize is that the preliminary data are of fundamental importance.

III. Immediate Work on Tapping.

We seem therefore to be facing this position, that in order to plan our experiments on a strictly scientific basis we must await the collection of data. This latter is the first piece of actual constructive work which should be put in hand at once. But the question now arises—can we do no work of value in the meantime? There is a present demand for experiment, young rubber is available and has actually been offered for experimental work, and delay may appear to spell financial loss. It is thought that an immediate start *may* be made in the actual System-testing even in the absence of the preliminary data. This may seem and possibly is an appallingly vacillating attitude, having so laboured the points outlined above, but we are out to do our very best under the conditions obtaining, and we are confronted with the position that to wait for the data desired means a delay of at least eighteen months. This delay to the scientist is of no importance—he is prepared to wait. Those who have followed the arguments so far and who will bring them to bear on what is immediately suggested will see that what is now suggested to meet the present position has at least the virtue that everything possible has been taken into account to make the work of utility.

III. (*a*) *Block method.* Let it be assumed that it is desired to test immediately three Systems of Tapping. This may be done in two ways, the former of which utilizes the general method of experimentation, of averaging the results obtained from systematically arranged blocks of rubber, and as such will be discussed first. The land should be divided up into blocks systematically disposed, with all the reservations mentioned above for the eradication of errors carefully attended to, to the number of about thirty blocks for each system of tapping, and the average monthly yields of the thirty blocks for each system in terms of dry rubber, should be obtained. This figure has not been obtained by mere guess-work, but little point will be served in discussing how actually it has been arrived at, except to say that although the number may appear inordinately large, and the area of 400 acres or thereabouts under tapping experiments a thing undreamed of, one of the considerations in deciding on it is the fact that greater precision will be obtained, the greater the number of records available on whcih to average results, and, we are erring on the right side in stipulating for a large number of blocks even though this number may eventually prove to be too great, a fact which can only be disclosed by the results obtained under II (*a*). To err on this side is excusable. It is the only choice possible. We must be prepared to face the extra work in ensuring that our result may be of utility, though in point of fact it is thought that an experiment of this magnitude will not be entertained by any estate. This, however, does not affect the importance of the argument. In passing it may be worth bringing into prominence the fact that experiments on these lines for manurial trials or cultivation trials may be planned for immediate execution, with thirty blocks as the unit set for each separate treatment. It will thus be seen that an experiment involving the use of more than three manures or of more than three methods of cultivation will result in the area being of such size as to make it impossible to handle.

III (*a*). *Another method for the execution of Tapping Experiments—The Row method.*

(1) We have shewn how tree and soil errors are minimized in the method of experimentation outlined above and how we endeavour to distribute "coolie error," but it must be confessed that this latter error is a very perplexing one particularly in Tapping Experiments, and in experiments carried out as above, the presence of coolies of exceptional tapping powers may, however well the rotation is planned, cause great difficulties, in fact it should be

one of the points of first consideration in the execution of experiments under the block system, that the tapping coolies should be of approximately equal standard. The following method suggests a means whereby the "coolie error" can be perhaps more rigidly controlled, and in consequence, other things being equal it presents a good method of conducting Tapping Experiments.

The diagrams shewn in Figures 3 and 4 shew a large block of virgin rubber with individual trees numbered. In any small block of this rubber it will be seen that the trees, marked out in this case for the testing of three systems of tapping are, one row compared with another subject to similar average soil conditions. The arrangement is thus comparable to the disposition of the series of blocks of Figure 2, only in this case it will be seen that the chances of there being a wide range of soil conditions are less than in the larger area under the blocks.

Now suppose this area be divided into blocks of the size of a coolie's task, and that individual coolies be placed in these areas to tap trees on *all three systems*. Coolie errors in tapping now cease to exist, for whatever change is introduced into the block all trees experience it to the same extent, whether it be abnormally good or abnormally bad tapping. Similarly, an epidemic is just as likely to take toll of one set of trees as another, hence errors due to disease which may have to be "allowed for" in particular blocks under the block system, become far less important. Finally, it will be seen that soil errors may be even more fully compensated by the disposition of the rows of trees in various ways as shewn in Figure 4.

The matter for estate purposes, however, becomes one of practicability. There is no difficulty in the actual tapping of the trees, for trees once marked out provide their own index, but the actual collection of the latex may present a difficult problem. Can the coolie be trusted, given full instructions with all his trees numbered and his rows in any particular block prominently distinguished, to collect from individual rows and bring in his three separate lots of latex? This can only be decided in actual practice. The apparent advantage of the method in its rigorous control of tapping errors, in the great reduction of the size of the area under experimentation, and as a consequence of this in the decrease in the amount of supervision required once the experiment is well on its way, seems to dictate its being tried, but here again the immediate work is precisely similar to that outlined under II (*d*), (*e*) and (*f*) above. We have first to test the method

as a method. We are undecided as to the area which should actually be under the experiment; the claim which we make for its superiority (but be it remembered this is a claim for it in its application to Tapping Experiments only) is but a theoretical one, and it must be tried under the closest supervision ere we pronounce on it.

(2) *The test of the Row-method as a method.*

To test this method an area of about 10 acres approximating to three coolies' tasks is required, all trees being numbered as in Figure 3 and all cut on the same system, the latex being bulked in three separate lots per block and recorded as dry rubber per month. The monthly figures will, by their conformity or otherwise, definitely shew us the value of the method, and with the data so furnished it may be possible to see to what extent the area may be cut down, whether to two coolies' tasks or even one, to obtain results of accuracy. But again this means delay.

(3) *Immediate utilization of the row method for the testing of Systems.*

To meet the present demand for experiment there seems no a priori reason why the method may not be recommended for utilization immediately in the actual testing of Tapping Systems, if it be borne in mind that the results of one experiment will always be subject to criticism, and that duplication is always desirable.

An experiment for the testing of three systems could be carried out on a block of about 10 acres as shewn in Figures 3 and 4, only it should here be very strongly insisted that a check duplicate of the whole experiment should be provided on the same estate.

Conclusion and Summary.

Experimentation demands most careful supervision and this is the great call on the resources of estates undertaking experimental work. The futility of the results of an experiment, however carefully planned, and yet badly executed, will be apparent. Although the discussion above has indicated the points of major importance in the planning and execution of experiments, it may be helpful if the individual experiments are outlined in the light of the detailed supervision which they individually demand. This is done in the appendix. Now estates may be very hard pressed to find a means of accepting responsibility entailing extra supervision, but even if the work on the lines indicated cannot for this

reason be put in hand at once, this statement of the case will not be ill-timed if it gives matter for reflection, if it helps many to realize that agricultural experimentation is a difficult business, and becomes more and more so as time goes on, if it suspends "experimentation" which might possibly have been started without due attention to the points outlined herein, or if it points the way and leads to cooperative effort.

The table which forms the appendix indicates the major points of detail for the execution of any experiment on the Block or Row methods. The points detailed under "supervisional notes" are not complete, but it will be seen that their incompleteness concerns such points as tree-numbering, the colouring of series of trees and other matters which can only be decided on estates in consultation with those who will actually be in charge of the work. Managers know their coolies and may have devices of their own by which to obtain very exact checks of the work in progress. This report cannot deal with these, it can only indicate the nature of the records required and how they may be obtained.

Summary.

1. There is a general method of field experimentation which if properly executed can be relied upon to give accurate results. This method is one of "scientific averaging."
2. The first preliminary of this method in work on any crop is an investigation into the facts of "normal variation" in the material which is being used for experimentation.
   These facts of "normal variation" may be discovered in a trial, where records of a growing crop are taken under as far as possible identical conditions.
3. These facts being known it is possible by averaging to distribute their effect in an investigation into the comparative effects of various external conditions, leading to a correct value being ascribed to any specific treatment.
4. The first preliminary in rubber work therefore is the collection of preliminary data. In many previous field experiments with rubber too little attention has been paid to the possibility of "comparable" blocks of rubber giving widely different yields of latex under the same system of tapping. Hence it is difficult to place a correct value on the results obtained either in tapping work, manurial or cultivation trials.
5. The precision obtainable in the final result depends entirely

on the facts disclosed in the preliminary trial, and its importance cannot be over-estimated.

6. In order that we may be on the right side in performing tapping experiments by using blocks of rubber, in the absence of preliminary data, it becomes necessary to perform experiments on an abnormally large scale, very much larger it map be than may eventually be shewn to be necessary.

7. A particular form of experiment—also one of averaging seems of particular value in tapping experiments in that it rigorously excludes "coolie error in tapping." Theoretical considerations recommend its being tried under close supervision. It has certain practical advantages in the small area required for experiment, to recommend itself to estates. It may be conveniently described as the "Row Method."

8. The trial of this method should follow the sequence of the text. The method should be tried under a uniform tapping system prior to system-testing.

9. This method is unworkable for accurate manurial trials and cultivation experiments.

10. It is desirable that experiments be executed on estates on the lines indicated, for apart from the immediate utility of the results, there is nothing more important in field experimentation that the collection of sets of data obtained on "standard lines." The term "standard lines" implies a very high standard of supervision and this is absolutely essential.

1	2	3	4	5	6	7
14	13	12	11	10	9	8
15	16	17	18	19	20	21
28	27	26	25	24	23	22
29	30	31	32		etc.	

Fig. 1. shewing the disposition of blocks of rubber for the collection of preliminary data. Yields of dry rubber per month to be recorded for each block over a period of about one and a half years.

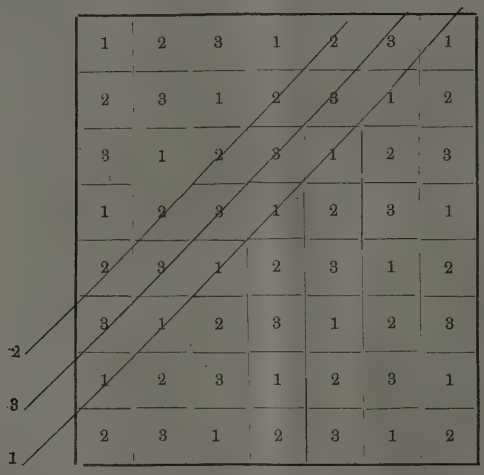

Fig. 2. shewing the disposition of blocks for the actual testing of 3 systems of tapping. Latex to be bulked as indicated by the diagonal lines and records of yields of dry rubber per month obtained.

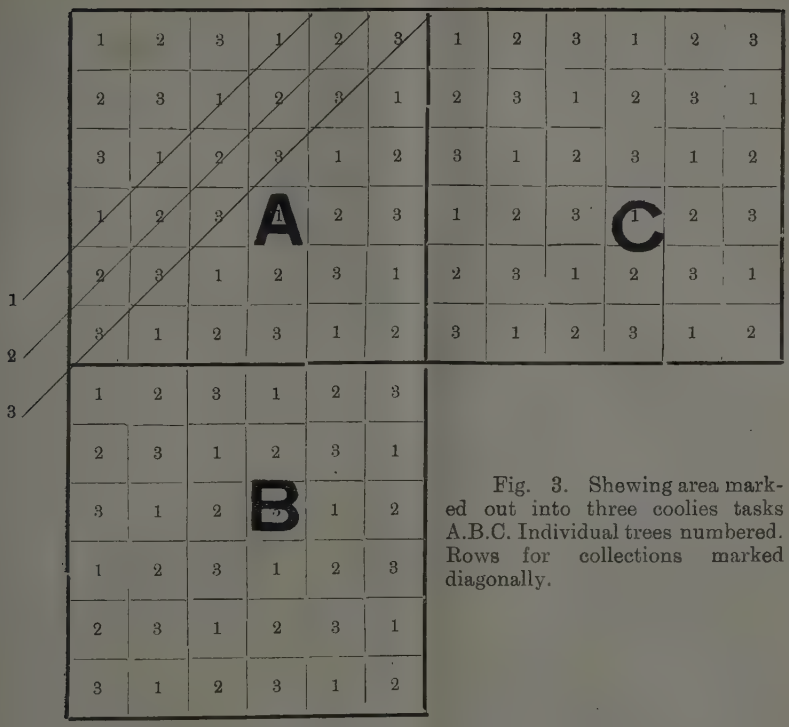

Fig. 3. Shewing area marked out into three coolies tasks A.B.C. Individual trees numbered. Rows for collections marked diagonally.

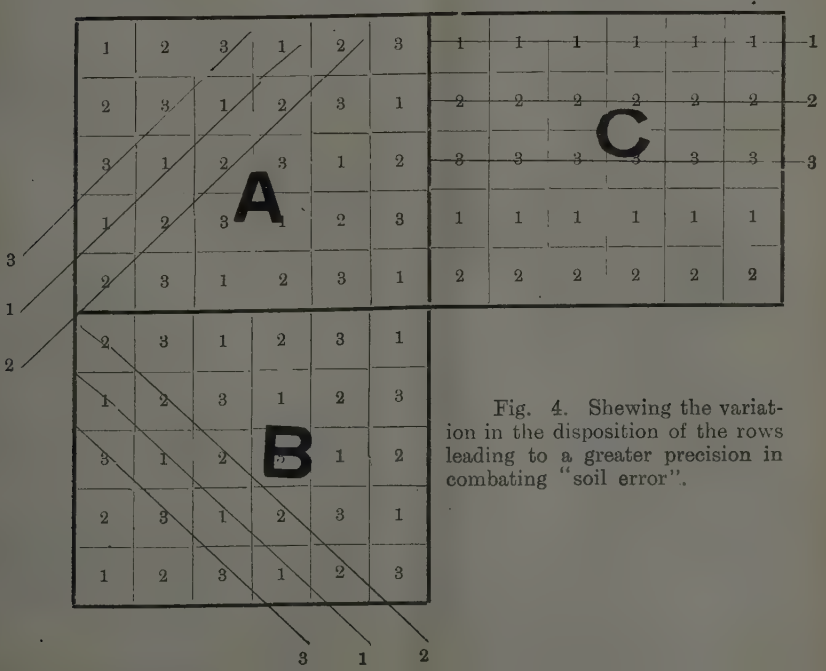

Fig. 4. Shewing the variation in the disposition of the rows leading to a greater precision in combating "soil error".

APPENDIX.

The following list of Tapping Systems was decided on by the "Sub-Committee on Experiments" in the Department of Agriculture as being most worthy of trial:—

(1)	Single quarter	two cuts daily	left to right cutting.
(2)	Single quarter	one cut daily	ditto.
(3)	One third	one cut daily	ditto.
(4)	Half Spiral	one cut daily	ditto.
(5)	Single V	daily tapping	
(6)	Double V	alternate day tapping	

Points in the Execution of Tapping Experiments.

			Land	Trees	Systems	Supervisional notes.
I. BLOCK METHOD	I. Preliminary trials for the collection of data.	I. A.	1. Flat or nearly so 2. 100 blocks of size of coolies task. 3. Square or avenue. 4. Disposition as in Figure I.	All tapped from outset.	Any *one* system.	1. One coolie one block. 2. Rotation of coolies. 3. Pails & blocks numbered. 4. Same knives used throughout. 5. Meteorological records kept. No collection for record purposes on wet days. 6. Record of trees lost by disease etc. 7. **Latex**: Estimated as No. 1 and Scrap per block per month. About 100 lots of latex to be received daily, to be bulked in to the latex of the corresponding block of trees of previous days to be finally estimated as dry rubber.
		I. B.	1. Hill slope. 2, 3 & 4 as above.	Do.	Do.	Do.
Tapping Experiments may be best carried out on Estates by two methods.	2. The actual testing of Tapping Systems.		1, 2 & 3 as for I. A. 4. Disposition as in Figure 2.	Do.	Any *set* of tapping systems.	1. 6 as above. 7. Latex for 1's, 2's & 3's bulked over the whole area, i. e., 3 lots of latex bulked as above and estimated per series per month as No. 1 and scrap.
II. ROW METHOD	3. Test of Row method as a method.		1. Flat or hill slope (not undulating). 2. About 10 acres of size of 3 coolies tasks. 3. Square or avenue. 4. Disposition as in Figures 3 & 4.	Do.	*Any one* system.	1. One coolie one block for tapping. 2. No rotation of coolies. 3. Pails, rows and blocks numbered. 4. Any knives may be used. 5. & 6. as for I. A. 7. Each coolie to collect every 3rd row over about 400 trees. Products of each series of rows in any block to be recorded, i. e., nine lots of latex to be handled in the factory. The great point is the supervision of the collections.
	4. Actual testing of Tapping Systems.		1, 2, 3 & 4 as above.	Do.	Any *set* of tapping systems.	1. 6. as above. 7. Latex over 1's, 2's & 3's bulked throughout the 10 acres. Three lots of latex to be handled daily in the factory. N.B.—If this is done in duplicate as desired on the same estate the records should be made as for an absolutely distinct experiment.

Some Soils from the Kuala Pilah and Jelebu Districts.

By J. Grantham.

(i) Padi Soils.

Five samples were obtained just after the padi harvest. Three were taken at Kayu Ara at about ¼ mile intervals, No. 3 being furthest up the valley. The yield here is from 350 to 400 gantangs per acre.

One sample was taken from the Sawah at the 46th mile Tampin Road. This has the reputation of being a poor sawah.

The remaining sample was taken between the 27th and 28th mile Jelebu Road. This sawah has an extremely good reputation.

The analytical results of these samples are given below.

Padi Soils, Kuala Pilah.

Mechanical Analysis.

	Kayu Ara 1	Kayu Ara 2	Kayu Ara 3	Tampin Road.	Jelebu Road.
Coarse Sand % ..	.6	2.6	4.9	13.8	4.3
Fine Sand	10.1	16.3	15.4	41.2	14.3
Coarse Silt	20.7	20.2	25.6	10.5	14.3
Fine Silt	26.1	22.6	21.0	12.5	23.7
Clay	27.3	23.0	20.6	13.4	27.8
Moisture	2.7	2.0	1.8	1.0	2.0
Loss on Ignition ..	12.1	11.3	10.3	7.2	11.2
Loss during analysis	.4	2.0	1.5	.6	2.0
	100.0	100.0	100.0	100.0	100.0

Chemical Analysis.

	Kayu Ara	Kayu Ara 2	Kayu Ara 3	Tampin Road.	Jelebu Road.
Insoluble in hydrochloric acid per cent	65.0	67.0	67.	82.0	66.0
Potash total „	.354	.317	.263	.175	.352
Phosphoric acid „	.056	.050	.050	.033	.082
Nitrogen	.196	.204	.177	.143	.202
Lime absorption .	.077	.088	.049	.058	.114

The three Kayu Ara samples and that from the Sawah on the Jelebu Road are all soils in which the clay and silt fractions predominate, and are typical of good padi soils.

In the Tampin Road sample taken from a poor Sawah the sand fractions predominate. an undesirable feature in a padi soil.

A point of interest in connection with the Kayu Ara samples is the regularity in the increase of the coarser fractions and the decrease in the finer fractions as one proceeds up the valley, the reason for this being that in an area in which the soil is formed by deposition from running water, the sand particles are deposited before the clay which remains in suspension for a longer time and is therefore carried further down the valley. It is therefore to be expected that in any broad valley where there are no abrupt changes in level that the sandier soils (and therefore less productive padi soils) will be found at the head of the valley.

The percentages of the soils insoluble in hydrochloric acid are approximately proportional to the quantities of the coarser fractions and due to the insolubility of sand compared with clay.

The potash which is mainly derived from the clay closely corresponds with the amount of clay. In both phosphoric acid and nitrogen the Tampin Road sample is inferior to the other four.

There is no apparent connection between the fertility and the acidity shown by the lime absorption. Indeed the soil from the best Sawah (Jelebu Road) is the most acid. It may be indeed that an acid condition within limits (the acidity of these soils is not great) is favourable to paddy. The rice plant depends mainly for its nitrogen upon the decomposition of organic matter under anaerobic conditions and in the earlier stages of growth takes up its nitrogen in the form of ammonia and not as nitrate. It is therefore favoured by a preponderance of anaerobic bacteria many of

which are acid producing. It has been shown* that cultivation of paddy soils after harvest, *i.e.* producing condition favourable to aerobic organisms, has a prejudicial effect on the succeeding padi crop.

(ii) Other Soils.

The other soils collected in this district were:—

(1) Hill soil under rubber, 43rd-44th mile Tampin Road. A reddish yellow loam typical of the hill land for the first few miles on this side of Kuala Pilah.

(2) Dark red jungle soil 30th-31st mile Jelebu road typical of the higher ground along this road.

(3) A white soil typical of the flat stretches 30th-36th mile often covered with poor blukar.

(4) and (5) Two samples from a rubber estate giving excellent results on the slopes of the granitic hills at Pertang, Jelebu, the only difference between them was that (4) was yellow in colour and (5) white.

(6) An intense deep red or chocolate coloured jungle soil at the 31½ mile Jelebu road. Soils of this character are usually found at the top of the passes in this district.

Mechanical Analysis.

	1	2	3	4	5	6
Coarse Sand ..	16.2	11.2	15.9	49.9	47.7	5.0
Fine Sand	36.3	14.9	28.2	7.4	9.5	10.3
Coarse Silt.. ..	4.6	16.6	13.1	2.4	5.7	10.3
Fine Silt	7.5	6.9	26.3	3.6	8.9	13.1
Clay	25.5	33.4	9.6	27.8	20.0	46.1
Moisture	1.2	2.1	1.0	1.1	.9	1.9
Loss on Ignition ..	7.1	13.5	4.7	7.6	6.9	10.9
Loss during analysis	1.6	2.4	1.0	.2	.4	2.4
	100.0	100.0	100.0	100.0	100.0	100.0

*Experiments on paddy cultivation 1909—11 Bulletin No.2 Department of Agriculture Mysore State.

Chemical Analysis.

	1	2	3	4	5	6
Insoluble in hydrochloric acid %	74.0	47.0	86.0	75.0	79.0	44.0
Potash total ..	.106	.102	.192	.044	.080	.066
Phosphoric acid total	.051	.030	.027	.034	.054	.038
Nitrogen ..	.075	.126	.078	.070	.098	.053
Lime absorption ..	.060	.154	.170	.055	.097	.059

The mechanical analyses divide these soils into three classes.

(*a*) Soils 4 and 5 derived from the granite characterised by a large percentage of coarse sand and a fair amount of clay with only small percentages of the remaining fractions. The coarse quartz of the granite has given rise to the sand particles and the felspar to the clay. Soil (1) closely resembles these soils but does not appear to rest directly on the granite.

(*b*) Soil 6 typical of the hill crests parts along the road and characterised by a preponderating amount of clay. Soil 2 is a less extreme member of this class. A peculiarity of soil No. 6 was that unlike most soils in this country it required extraction with acid previous to mechanical analysis, owing apparently to an aggregation of the clay particles. At the commencement of an analysis attempted without this extraction the whole of the soil settled in 24 hours although eventually it became broken up and analysis by the sedimentation process became possible. This analysis gave identical results with the one carried out after acid extraction except that the fine silt was 6% more and the clay 6% less in the former showing that the breaking down of the compound particles was not complete. Owing to these compound particles this soil is by no means as stiff as the percentage of clay would indicate. A similar soil in this respect was noted in a previous paper. ("Some Johore Soils" Agricultural Bulletin Vol. IV No. 4. Soil No. 6 Batu Anam District.)

(*c*) Soil 3, a flat alluvial soil characterised by an unusually high percentage of fine silt combined with such a small percentage of clay.

Turning to the chemical analysis all the soils are poor in nitrogen, potash and phosphate. They are also all characterised by a low acidity.

Of the three soils under rubber cultivation, 4 and 5 which give the poorest analysis, are giving excellent results and afford one of the many examples which have been obtained which go to show that the *chemical* analysis of *hill* soils in this country is useless as an indication of their suitability for rubber.

Soil No. 3 is flat alluvial soil and, as such, is relatively very much poorer than the acutal figures indicate. Soils of this type are not good rubber soils.

The solubility in hydrochloric acid divides the soils into exactly the same three groups as does the mechanical analysis. Only one soil (other than peat soils) has been obtained, on which rubber is cultivated, having such a great solubility in hydrochloric acid as Nos. 2 and 6, viz. the Batu Anam No. 6 referred to above, which gave very good results. This soil however was not a poor soil but an extremely rich one, and the possibilities of the (*b*) class can hardly be predicted from results obtained upon it.

Wormseed oil (Oleum chenopodii).

By B. J. Eaton.

The use of wormseed oil as a general anthelmintic has become very popular since about 1908, but its introduction into the Federated Malay States on account of its anthelmintic properties especially in connection with the disease known as American Hookworm or ankylostomiasis has been comparatively recent. The use of this drug in the Federated Malay States was brought to the notice of the Agricultural department about the middle of last year and seed was obtained from America at the earliest opportunity. This seed was planted shortly after its arrival and the plants are now fruiting. In view of the fact that practically all the essential oil of the plant is stated to be derived from the seed and fruit and that sufficient seed for distillation will not be available for some time, the following information concerning the oil and its origin will probably be of interest.

Wormseed oil, usually described as American Wormseed oil or Oleum chenopodii is a volatile or essential oil obtained by

aqueous distillation of the herbaceous plant Chenopodium ambrosioides L. var. anthelminticum (Gray) and is an official drug of the U. S. A. Pharmacopeia.

The oil has a yellow colour, an offensive penetrating odour and a burning taste. It appears to have been first examined thoroughly by Kremers in 1907 and the information given here is derived from the quarterly and semi-annual reports of Schimmel & Co., Leipzig, one of the largest essential oil distillers in the world. The researches carried out on essential oils in the laboratories of this firm at Miltitz near Leipzig, which were visited by the writer in 1912, are well known to all workers in this realm of chemistry.

The greater part of the oil of commerce is derived apparently from Maryland, U. S. A., and owing to the irregular quality of the oil obtained during 1907-1908, investigations were carried out in the laboratories of Messrs. Schimmel & Co. as to the cause of this irregularity and as to the nature of the oil and its principal therapeutic constituent. It was found that the irregular quality of the oil, which shewed itself chiefly in a lowering of the density, was due to too slow and prolonged a distillation, and that by crushing the seed and distilling for only a short period an oil of higher specific gravity, similar to the oil previously obtained from Maryland, was obtained. Further distillation experiments with the oil itself, shewed that, even after two hours' boiling, the density of the oil was reduced considerably and that decomposition had taken place.

A distillation of the herb free from seed, shewed that the stalk and leaf contained no oil. The yield of oil obtained from the whole plant, including seed, was found to be about 0.47 per cent, while the seeds alone yielded 0.78 per cent equivalent to 0.48 per cent on the whole plant, shewing the absence of oil from the leaf and stalk. In a second experiment 1.03 per cent of oil was obtained from the seed, equivalent to 0.63 per cent on the whole plant and, in this experiment, it was discovered to be preferable to run the distillation slightly warm so that the oil did not flow back into the condenser and thus undergo redistillation. In order to obtain a good yield of oil without waste and prolonged distillation, it is recommended that only the crushed seed should be used.

Constituents of the oil:—The constituent of the oil, to which its therapeutic properties are ascribed, has been isolated and named "Ascaridol," although its exact chemical constitution does not appear to have been determined yet, but the evidence obtain-

ed suggests that it is an unstable organic peroxide. One peculiar property it possesses is to become violently explosive when heated to 130°-150°C., hence it is advisable to distil the oil in vacuo, when examining its different fractions. Ascaridol is also stated to have a constitution probably analogous to that of cineol, otherwise known as Eucalytol, the active constituent of Eucalyptus oil.

The normal American Wormseed oil is stated by Schimmel & Co. to contain from 62 to 65 per cent of the active constituent and about 22 per cent of cymene—a terpene body. Oils of lighter density contain only from 45 to 50 per cent of ascaridol and 38 per cent of hydrocarbons. It will be of considerable interest to ascertain whether the oil distilled from seeds and fruit grown in this country is similar to the American product.

Anthelmintic properties of the oil.

Pharmacological studies of the oil by Bruning has proved the oil to be as powerful an anthelmintic as santonin and it also, as would be expected, possesses strong bactericidal properties. The drug is apparently usually applied in the form of an emulsion with gum arabic.

Bruning in 1910 published a paper on the therapy of helminthiasis in the tropics and considers that American wormseed oil is far superior to all other anthelmintics.

Researches by Kobert indicate that the therapeutic value of the powdered drug, which is also apparently used, may be ascribed to the presence of saponin bodies as well as to the essential oil. An emulsion of the oil (Emulsio olei chenopodii anthelmintici composita) is stated to be sold in Germany under the name of Wermolin and used as a remedy for ascaridiasis in children. The use of the oil in tropical medicine is evidently therefore comparatively recent.

Further information on our own investigations of the plant will be published when material for distillation is available.

MINUTES OF ANNUAL GENERAL MEETING OF THE PLANTERS' ASSOCIATION OF MALAYA,

held at 10.45 a.m. on April 26th, 1916, at 12 Market St., Kuala Lumpur.

PRESENT: Mr. W. Duncan (in the Chair); and the following Representatives:—

From Batang Padang D. P. A.:—	Messrs.	T. H. Stewart and C. B. Graburn
„ Batu Tiga D. P. A.:—	„	W. S. Reeve-Tucker, M. A. P. Gilman, H. L. Jarvis, Carlyle Bell and T. J. Cumming.
„ Central Pahang P. A.:—	„	P. J. A. Williams and F. H. M. Staples.
„ Central Perak P. A.:—	Mr.	J. S. Ferguson.
„ Kajang D. P. A.:—	Messrs.	F. B. Gough, E. G. Leyne, O. P. Dakeyne, E. M. Schwabe, W. B. Anderson, C. W. B. Turnbull and R. C. M. Kindersley.
„ Kapar D. P. A.:—	„	J. G. Cruickshank, A. W. Brodie, Noel Fisher, H. Case, A. Mahler, & J. M. Saunders.
„ Klang D. P. A.:—	„	C. Harrison, E. B. Prior, R. N. Hendrie, C. A. Buxton & E. C. Wakefield.
„ Kuala Langat D. P. A.:—	„	R. W. Munro and M. L. Mailer.
„ Kuala Lumpur „	„	R. G. Manners, W. L. Wood, F. Austin, R. C. Kinder, F. Clyde Jeavons, F. G. Harvey, W. Leggatt, V. Utterson Kelso, R. M. Newton and C. J. Arnold.
„ Kuala Selangor „	„	R. Garnier, R. S. McCulloch, L. A. Irving, C. W. Bradburne and T. H. Menzies.
„ Negri Sembilan P. A.:—	„	J. D. McCulloch, V. A. Tayler, J. Bruce, F. J. Lloyd, A. Burton, T. R. Holt, F. T. Wynyard Wright, T. Slade Adams and W. J. Doughty.

Ulu Selangor D. P. A.:— „ F. W. Davies, M. D. Fallon, W. H. Dakeyne, R. C. Lindsay, G. C. Bailey, N. W. Patton, S. Harding, O. D. Hargis and F. G. Herose.

Honorary Members: The Hon'ble Mr. E. Macfadyen; Mr. E. S. Hose (Director of Agriculture) and Mr. J. R. O. Aldworth (Controller of Labour).

Visitor: Mr. Malcolm Watson.

H. C. E. Zacharias, Secretary.

1. The Minutes of the previous Meeting, held on Jan. 31st, are taken as read and confirmed.

The *Secretary* (in reply to a question by Mr. *Harvey*) explains the necessity he had been under of getting these last minutes printed otherwise than by the Government Printer, who in this instance had been unable to keep to their arrangement, owing to excessive pressure of Govt. work. He regretted the consequent delay in issuing these minutes, but had only recently been definitely informed of the Government's inability of doing this work, as usual.

2. AFFILIATION.

The *Secretary* reports the formation of a new Association, viz: the Central Pahang Planters' Association, and their request for affiliation.

Mr. *Duncan*, in formally moving the affiliation, welcomes the representatives of the new Association, attending this meeting, and urges the desirability of the planting interests of the whole Peninsula being represented by one strong and united body, and the necessity of planters from every part of Malaya regularly meeting and taking counsel together.

Mr. *Macfadyen* has much pleasure in seconding the motion, which is carried unanimously.

3. INDIAN IMMIGRATION.

The *Chairman*, having invited the Controller of Labour to give them the benefit of his recent visit to India,

Mr. *Aldworth* says he had during his visit to India last cold weather made several notes of matters, which he thought might dispel a good deal of misconception which still existed amongst planters as to the work done in India for the Indian Immigration Committee. This work the continues, is done by officers paid by the Government, but they are responsible to the Controller of Labour, who is Chairman of the Indian Immigration Committee. They take their instructions from me and I consult the Committee

(ordinarily at the regular meetings, occasionally by circulation of correspondence) on all matters of importance. Nearly every difficult case that arises has a precedent by which the officers of the Department are guided, but in order that members of the Committee may be kept acquainted with what is done I am in the habit of reporting at the Committee meetings action taken in any case which may appear a little out of the ordinary.

A good deal of misconception exists amongst employers as regards Kangani recruiting licenses. The second edition of a pamphlet entitled "The Indian Immigration Fund and its working in connection with recruiting labourers by means of kanganis in the Madras Presidency" was published in 1914. The contents of this pamphlet are unknown to a large number of employers, and I would earnestly commend to those of you who have not given close attention to the subject a careful study of that pamphlet, especially the chapter headed "Instructions for recruiting by Kanganis in India."

Many of you no doubt take a keen interest in the subject, but the experience of the various officers of the Department shows that a considerable proportion of employers, who may have been recruiting through kanganis for several years, have but vague ideas as to the procedure followed.

Kangani licenses are issued by the Deputy Controller of Labour, Penang, who keeps a register of licenses. There is an old standing rule that a license registered by the Department at Penang is not as a matter of course registered at the Madras or Negapatam Office, but is subject to further enquiry in India as to whether the licensee is a desirable person to hold a license. This practice, which has upon occasion caused umbrage to employers on this side, is a precaution taken solely in the interests of the employer. That seventy licenses were cancelled last year on account of improper practices connected with recruiting will shew that a sharp lookout is kept by the Agents in India, who perhaps know more about the character of certain recruiters than their employers this side.

Not infrequently Managers of estates, after having obtained the registration of a license at the Penang Office, send the license by post to the Kangani in India. This practice always causes unnecessary trouble and sometimes opens the door for grave irregularities. It does not always appear that the employer has instructed the kangani that before beginning recruiting work he must take his license to the Emigration Agent for registration. Cases occur in which the first the Emigration Agent knows of a Kangani is that he appears at the depot with a number of coolies, and it is found at times that the kangani producing the license is either not the kangani described or that he is an undesirable person.

In cases where the license is, after registration at Penang, sent over to the Financial Agents, the latter have the trouble of calling the licensee to their office and forwarding him and the license to the Emigration Agent for enquiry and registration of the license. So it will be seen that nothing whatever is gained, and something may be lost, by the not uncommon practice of forwarding licenses direct to the kangani in India, and I would beg of all planters to follow out the procedure laid down, which prescribes that all licenses registered by the Department in Penang must be sent or taken by the licensee to the Emigration Agent at Madras or Negapatam before the licensees are entitled to begin recruiting.

A few remarks regarding the voluntary immigrant system will not be out of place, because experience shows that the system is liable to be a good deal misunderstood by estate managers. Under this system bona fide labourers who appear before the Emigration Agent at Madras or Negapatam may receive free passage tickets either to Penang or Port Swettenham, where they are landed and are free to go where they like and to work for whom they like. Returned labourers from the Straits may also receive free tickets when they want to come back to the Straits. I may add that a free ticket is never refused to any person who appears to be a bona fide labourer and of decent physique.

It is not necessary that coolies intending to return as voluntary immigrants should be provided with letters from their former employers, but if a note or certificate is given it should be addressed to the Emigration Agent at Madras or Negapatam. But through a misunderstanding a practice obtains of employers giving their returned labourers a note to the Madura Co. or to Messrs. Binny & Co. in which they are asked "to grant" passage tickets, and in some cases it is mentioned that they should be returned as voluntary emigrants.

Now I will read you two letters taken at random from a number of similar letters which will prove to you how much unnecessary trouble this causes. The first is from the Manager,—Rubber Estates Ltd., to the Madura Co., Ltd., Negapatam, and reads:—"Bearer Chami Nair, a kangani from this estate, is going to India on leave. Please give him a ticket back to Penang on his return in September."

Now the sequel, a letter dated the 17th September, 1915, from the Madura Co., Ltd., Negapatam, to the Superintendent, S. S. Emigration Depot, Negapatam:—"Dear Sir,—I am enclosing herewith copy of letter received from the Manager,—Rubber Estates, Ltd., Perak. We shall be glad if you will kindly arrange to send bearer Chami Nair as a voluntary emigrant to Penang by the sailing of the s.s. "Tara" on Monday the 20th instant. Yours faithfully, for and on behalf of Madura Co., Ltd., A. Scott, Manager." You will no doubt realise that both these letters are absolutely unnecessary.

I think it is desirable that Managers should realise that all the work in connection with emigration is performed by the Emigration Agents, officers paid by the Government, not by the Madura Co. or Messrs. Binny & Co., who are your Financial Agents, and, so far as the recruiting business or the return of voluntary immigrants is concerned, nothing more. In connection with this subject I may mention that instances have occurred where applications have been made for such free tickets to be granted to the wives and relations of clerks and others on estates. No doubt such applications have been made thoughtlessly and in good faith, but a little reflection will show how unfair it is to the other contributors to the fund that some few estates, should, even through heedlessness, try to avoid their proper obligations in this manner.

About three years ago many thousands of notices in Tamil and Telugu were printed and distributed to estates explaining to labourers that these free tickets could be obtained for the asking. A few months ago I directed all inspecting officers to make enquiries on each estate they visited. The replies I have received so far go to show that not a single one of these notices can be found to exist. Naturally the voluntary immigrant system is not favoured by kanganis who get recruiting commission, and often head money, on estates, and who by this means are enabled to exercise immense power over the coolies and often seriously to embarrass their employers. Every voluntary emigrant that comes into the country helps to break down the power of the kangani and I would most earnestly ask you all to help to hasten the day when our Indian labour will come over here of its own volition, as it goes to Burma, unconnected with kanganis. You would save vast sums of money in recruiting commission and head money and you would have your labour working for you, not for a kangani, who is perpetually scheming to keep to windward of you. The number of voluntary immigrants who come over is steadily, if slowly, increasing without any encouragement. I do not see why with proper encouragement we should not get several thousands next year and perhaps in ten years or so have broken the power of the kangani altogether. But of course the necessary steps must be thought out carefully and carried out systematically: the cooly may need some slight inducement. I commend the subject to your consideration, and I need hardly say how pleased I shall be to give any advice or assistance in my power, if you think the idea is worthy of the attention of your Standing Committee.

Before I close I must say a few words about Dr. Foston, who for fifteen years was Superintendent of the Straits Settlements Emigration Depot, Negapatam, and for three and a half, was Emigration Agent for the Federated Malay States at Negapatam. The state of his health has rendered it necessary, I regret to have to say, for him to ask to be relieved. He left Negapatam on the 15th of March for Home, on three months' leave prior to retirement on

pension. A number of you have made the acquaintance of Dr. Foston, have seen the camp which was his creation and are acquainted with the excellent work he did. His one aim and object was, whilst scrupulously protecting the interests of the Indian labourer, to do his best for the employer this side and to keep up a regular and adequate supply of labour, and to serve this end he never spared time or trouble. Dr. Foston was a man of striking personality, and if his successor differs from him in many ways, I have every reason to believe that the work at Negapatam will be carried on in a thoroughly efficient manner by Dr. J. C. C. Ford, whose record at Madras since 1912 is sufficient guarantee that the interests of the contributors to the Indian Immigration Fund will not suffer.

If any members of the Association wish to ask any question, he would be glad to reply to them by the best of his ability.

Mr. F. G. *Harvey* asks whether, when a license was cancelled, it was usual to inform the Manager of the estate concerned.

Mr. *Aldworth* replies in the affirmative.

Mr. *Ferguson* concurs that the employer is apparently notified to that effect, but that personally he had never been given any details, but merely the bare fact.

Mr. *Harvey* asks whether the Emigration Officers had any right to stop licensees in the case of plague &c.

Mr. *Aldworth* thinks the reference was made in respect of a small district only, the Collector of which had stopped a recruiter for two months on account of plague having broken out in his village. However, the embargo had since been withdrawn and things went on there again, as usual. He was unaware of any other occurrence of a similar nature.

Mr. *Duncan* expresses the meeting's obligation to Mr. Aldworth for his most interesting address, which he hopes would make the working of their recruiting system more widely understood. He would take the opportunity of urging them all, to comply strictly with the law and avoid irregularities, which could only cause trouble later on, both on the estate and in India.

Mr. *Macfadyen* wishes to associate himself with Mr. Duncan's remarks, as far as they referred to the very informative matters of fact, contained in Mr. Aldworth's address. But there was one part of the Controller of Labour's remarks which was not purely a question of giving information—that passage in which he dealt with the kangany system and with the prospect of the kangany system of recruiting being replaced by purely voluntary emigration —or perhaps he should say *individual* voluntary emigration, because the kangany system was voluntary too. It was very interesting to hear the words in which Mr. Aldworth communicated what he gathered were his own views as to the desirability of such a change,

and it might be that those views might on consideration commend themselves to planters as a whole and to the Association in particular. Personally he rather doubted it, but in any case it seemed to him important that silence on that point now, should not later on be interpreted as a ready concurrence with these personal views of Mr. Aldworth's on the part of this Association. He therefore felt it his duty to state plainly that planters generally were by no means yet prepared to exchange the individual for the kangany system of immigration. The kangany system undoubtedly was liable to abuse, and the power of the kangany in many cases could grow into something very formidable and undersirable. No doubt in Ceylon, for instance, the kangany had become a perfect incubus upon the industry, but the kangany system nevertheless had very great uses, and there seemed little probability that within the next ten years this country would be able to dispense with it. The kanganies in many cases were very valuable men, and he did not believe himself that they would ever be able to work native labour without some native intermediary. Both kanganies and mandors performed very useful functions in the planting industry in this country, and he thought it would be a pity if merely by silence on their part they gave the Controller of Labour the impression that they were unanimously in agreement at the present stage, without further consideration, with the view that it should be the policy of the Government and of the Immigration Committee to "down" the kangany, as he gathered that the Controller himself thought the kangany should be "downed" (Applause.)

Mr. *Aldworth* says he entirely agreed with Mr. Macfadyen's remarks that it would be a mistake if the idea should arise that the Committee was in favour of starting straight away to "down" the kangany. He merely made some suggestions for consideration. He knew the kangany was absolutely necessary, and he also knew that the kangany was nothing like the nuisance that he might in certain circumstances become. The ideas he had expressed were merely private ones, but he still thought they were worth ventilating. (Applause.)

Mr. *Harvey* suggests that the Association record its regret at Dr. Foston's retirement and the debt of gratitude owed by the whole Industry to him for his valuable services during his long years of service.

Mr. *Duncan* seconds the motion, which is passed unanimously.

4. MAGISTRATE AT PORT SWETTENHAM.

The *Secretary* reads the following correspondence:—

Kuala Lumpur, 1st February, 1916.

The Controller of Labour, F. M. S.,

Kuala Lumpur.

Sir,

28/260.

In continuation of my letter of December 30th I have the honour to inform you, that at a meeting of this Association held yesterday, I was authorised to confirm the contents of the said letter as expressing the views of the Association, and further to submit, that a Magistrate be permanently stationed in Port Swettenham at least experimentally for three months.

I have etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.
Kuala Lumpur, 7th February, 1916.

No. 31 in 260/1915.

Sir,

I have the honour to acknowledge receipt of your letter dated the 1st February, 1916, submitting that a Magistrate be permanently stationed in Port Swettenham, at least experimentally for three months.

2. As stated in this office letter of even number dated 29th December, 1915, I am unable to recommend to the Government that a Magistrate other than the Harbour Master be stationed permanently at Port Swettenham. So far I see no reason to alter my views and I regret that I am unable to see my way to move any further in the matter.

I have etc.,
(Sgd.) J. R. O. Aldworth,
Controller of Labour, F. M. S.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

Mr. *Jarvis* very much regrets the Controller's decision. Since the Harbour Master was unavailable for all practical purposes, he would propose that the Supervisor of Customs or any other suitable official, already permanently stationed at Port Swettenham, be given the necessary powers.

Mr. *Jeavons* seconds the proposal.

Mr. *Aldworth,* being invited to give his views, would remind them that the Government service was very short-handed, and he thinks that this was the real difficulty.

Mr. Jarvis' proposal is carried and the Secretary instructed to address the Under Secretary accordingly.

5. ABSCONDING.

The *Secretary* reports that the "Sungei Rasa Crimping case" had been referred by the Standing Committee to their legal advisers whose opinion he had forwarded to the Klang D. P. A. Counsel's opinion was as follows:

"Opinion re Authority of Estate Employees to arrest

Crimpers."

The facts laid before us are as follows:—

On the 7th October 1915 on the Bukit Rajah Rubber Co: Ltd's Sungei Rasa Estate, a Mandor named Govindasamy who is employed on a rubber estate in Malacca, was found by Muttusamy Kangany and Mydin, a coolie, both in the employment of the Bukit Rajah Rubber Co. Ltd. in the act of attempting to crimp Bukit Rajah coolies. Govindasamy was taken by Muttusamy Kangany and Mydin to the bungalow of Mr. Davidson, the Assistant Manager. The day being a Sunday, no Magistrate was available for the purpose of issuing a warrant for the arrest of Govindasamy. Govindasamy was therefore taken to the Estate Store and the Estate Watchman was instructed to watch him. Nothing was done in the way of forcible detention but the accused, knowing that he was being watched, remained on the Estate till Monday morning, when the Police took him into custody.

Govindasamy was convicted of the offence of attempting to crimp coolies and was sentenced to a fine of $50 or six weeks rigorous imprisonment.

Govindasamy however brought counter charges against Muttusamy Kangany and Mydin for the offence of unlawful restraint and against Mr. Davidson for the offence of unlawful confinement. All three of these accused were convicted, Muttusamy Kangany and Mydin being fined $5 each and Mr. Davidson $20.

The question whether or not, in this particular instance, there was actual restraint or confinement, does not arise.

The general question upon which our opinion is asked is as follows:—Is an Estate Manager or Assistant acting within his legal rights according to the law of the Federated Malay States if, finding a person on the estate, attempting to crimp his coolies, he apprehends and retains that person until such time as he can hand him over into the custody of the Police?

No mention of the offence of Crimping is made in either the Criminal Procedure Code or the Penal Code, but the Labour Code 1912 sec. 225 states as follows:—

"Any person who shall knowingly seduce or take, or attempt to seduce or take, from his service or employment any labourer .....shall be liable on conviction to a fine not exceeding $100 or to the imprisonment of either description for a period not exceeding three months, or to both, in respect of each and every such labourer....."

The offence is not stated to be either seizable or non-seizable.

By the Labour Code Sec. 257, it is necessary in every action brought against any person for anything done, or *bona fide* intended to be done in the exercise or supposed exercise of the powers given by this Enactment or by any rules made thereunder, to allege

expressly that the Defendant acted either maliciously or negli- the Plaintiff shall fail to prove such allegation, judgment shall be given for the Defendant.

The Criminal Procedure Code Sec: 22 (2) states as follows:— "When any person in the presence of a Police Officer commits or is accused of committing a non-seizable offence and, on the demand of a police Officer to give his name and residence, gives as his residence a place not within the State, he may be arrested by such Police Officer, and shall be taken forthwith before the nearest Magistrate, who may either require him to execute a bond with or without surety for his appearance before a Magistrate's Court if so required or may order him to be detained in custody until he can be tried, or shall be taken before a Police Officer not below the rank of Inspector, who may require him to execute a bond, with or without a surety, for his appearance before a Magistrate's Court, if required."

By the Criminal Procedure Code sec. 24 (2) "Whoever commits an offence on or with respect to the person or property of another, may, if his name and address be unknown, be apprehended by the person injured, or by any person who may be using the property to which the injury may be done, or by the servant of either of such persons, and may be detained until he gives his name and address and satisfies such person that the name and address so given are correct, or until he can be delivered into the custody of a Police Officer."

The Labour Code by sec: 257 quoted above, might be held to place certain obstacles in the way of an action on the grounds of restraint or confinement, brought by a person found crimping, against his captors, *i.e.* the necessity of proving that such act of restraint or confinement was performed maliciously or negligently and without probable cause,—but these obstacles could, we think, in—at all events—the majority of cases, be overcome.

Sec. 22 (2) of the Criminal Procedure Code dealing with persons who give, as their address, a place outside the State, authorises their arrest by a Police Officer but not by a private person.

Sec. 24 (2) of the Criminal Procedure Code deals with the circumstances under consideration.

Our opinion is:—

That the crimping or attempted crimping of labourers is an offence under the Labour Code.

That the right to the services of its labour force is the "property" of an Estate or Company within the meaning of sec. 24 (2) of the Criminal Procedure Code.

That the Crimping or attempted crimping of the labourers of an Estate or Company is "an offence with respect to the property of such Estate or Company within the meaning of sec. 24 (2) of the Criminal Procedure Code.

That a person crimping or attempting to crimp labourers from an Estate or Company may, if his name and his address be unknown, be apprehended by such Estate or Company, or by any person who may be using the property to which the injury may be done, or by the servant of such Estate or Company, or person, or by any person authorised by or acting in aid of either such Estate or Company, or person, and may be detained until he gives his name and address and satisfies such Estate or Company or person that the name and address so given are correct, or until he can be delivered into the custody of a Police Officer. But that such Estate or Company or person, if aware at the time of apprehension, of the name or address of the person found crimping or attempting to crimp, is guilty of an offence if it or he apprehends or detains or attempts to apprehend or detain such person.

That in the special case laid before us, Muttusamy Kangany, Mydin and Mr. Davidson, in restraining and confining Govindasamy until such time as he could be handed over into the custody of the Police, were acting within their legal rights if at the time of the apprehension, they were in ignorance of both the name and address of Govindasamy, but that if at the time of the apprehension, they knew either his name or his address, they committed an offence.

That if at the time of apprehension, Muttusamy Kangany, Mydin and Mr. Davidson were in ignorance of the name and address of Govindasamy they were not bound to release him until he had given his name and address and had satisfied them that the name and address given were correct, or until he could be delivered into the custody of a Police Officer."

The opinion of
Freeman & Madge.

Kuala Lumpur,
29th February, 1916.

The *Secretary* further tables the following letters:—

Klang District Planters' Association.
Klang, 29th February, 1916.

The Secretary,
Planters' Association of Malaya.

Dear Sir,

At a meeting of the Klang D. P. A. held on 22nd instant several members complained of the very large numbers of new coolies who abscond from estates immediately on or within a few days of arrival, and I was instructed to ask you to put this matter before the P. A. M. at the next Meeting.

It was the opinion of the meeting that these coolies were generally old coolies returning to this country or persons influenced by old coolies with whom they travelled over from India. These coolies had no intention of working on the estates for which they were recruited, but took any opportunity to come on kangany licenses in order to obtain the same advantageous treatment afforded to kangany coolies, such as rail fares at both ends of the journey. It was considered that, as it was undoubtedly to the advantage of Planters that the country should obtain all the labour necessary to fill up estates, kampongs, and other places of employment, the P. A. M. should be asked to consider the advisability of approaching Government with a view to putting all coolies, whether recruited by kanganies or coming over on their own account, on an equal footing as regards all travelling from their villages until they reached their places of employment. It was proposed that, in the event of such treatment being extended to *all* coolies, the fact that such facilities had been extended to coolies coming over on their own account be made widely known both here and in India.

Yours faithfully,
(Sgd.) C. A. Buxton,
Hon. Sec: Klang D. P. A.

The Secretary, Klang, 30th March, 1916.
Planters' Association of Malaya.

Dear Sir,

I have been instructed by my Association to forward to you the enclosed copies of letters on the subject of the Camp and Depot at Port Swettenham. We consider the matter of such importance that it has been decided not to let the matter drop, and we intend to bring it up again at our next meeting.

I shall be glad if you will lay this correspondence on the table at the next P. A. M. meeting and keep it for further reference if the subject is brought up at any future P. A. M. meeting.

Yours faithfully,
(Sgd.) C. A. Buxton,
Hon. Sec: Klang D. P. A.

Sir, Klang, 1st July, 1915.

In reply to your letter of date 22-6-15 I have the honour to state that since the beginning of this year 21 coolies have absconded from the depot, and 43 from the quarantine station at Port Swettenham.

I have, etc.,
(Sgd.) J. W. Goldthorpe,
Ag: Deputy Controller of Labour,
Klang.

C. A. Buxton Esq.,
Hon. Secretary,
District Planters' Association,
Klang.

Batu Unjor Estate,
Klang.
14th September, 1915.

The Secretary to the Resident,
Kuala Lumpur.

Sir,

As you are doubtless aware, there has recently been a considerable amount of absconding from both the Quarantine Camp and the Depot at Port Swettenham. Information supplied by the Deputy Controller of Labour, Klang, shews that between February and the end of June 43 coolies absconded from the Camp and 21 from the Depot. This subject was discussed at a Meeting of the Klang District Planters' Association held on 21st June and was considered of such importance to the Planting community that the Committee was appointed to visit the Camp and Depot. I enclose a copy of the report made by the Committee which, I think, speaks for itself.

I was instructed at a Meeting held on 2nd August to approach you on the subject in the hope that Government will see its way to comply with our request to have a corrugated iron fence 10 feet high erected in the place of the present inadequate barbed wire surrounding the Camp, and we would ask that the iron railing round the Depot be removed and replaced by a similar corrugated iron fence. Further we would ask that our suggestion in paragraph four of the Report be adopted.

I have etc.,
(Sgd.) C. A. Buxton,
Hon. Sec: Klang D. P. A.

REPORT of the Committee of the Klang District Planters' Association on the conditions prevailing at the Quarantine Camp at Port Swettenham which might aid the escapement of coolies from the camp and the loss of coolies by absconding after departure from the Camp.

In view of the fact that it has been reported from time to time by various estates that coolies before the time for their proper discharge have turned up on the estates having escaped from the Quarantine Camp and in view of the fact also that a number of coolies newly arrived from India are absconding within a day or two of arrival on their respective estates having taken rice and advances, the matter was brought before the Meeting of the K. D. P. A. held on the 21st day of June 1915 and after some discussion the Committee of the Association were asked to go and inspect the Camp and ascertain if it were possible first that coolies could escape—secondly if there was any reason to suppose they might be tampered with whilst inside the camp and induced to leave the estate for which they were recruited.

On the 25th June Mr. Wakefield, Mr. Prior and Mr. Buxton proceeded to Port Swettenham and in company with the Health Officer went round the Quarantine Camp.

As regards the question of escaping from the Camp, the conclusion the Committee came to was that it was quite possible to do so by climbing up on to the latrine back wall which runs at a right angle up to the outside circular fence. Access to the top of the back wall is made easy by a series of walls of the height of about 4 feet which form partitions of the latrine. These join on to the back wall and form steps enabling the coolies to climb up, proceed to the boundary fence and drop outside the camp. For 2 or 3 feet from the boundary fence there are broken bottles on the top of the back wall but the committee were of opinion and the Medical Officer was of the same opinion that this would not deter a coolie from escaping if he wished to, as sacks could be put on over the small strips covered with broken bottles, if any broken bottles were there. Of course, there is always the possibility of connivance with the watchmen as an aid to a cooly escaping.

It appeared as a possible remedy that the back wall of the latrine could be removed for a space of 10 feet or so from the outside wire fence so that a cooly could not jump over the fence. As far as could be judged the removal of that portion of the wall would not make the slightest difference to the strength of the structure or its utility as a latrine and in this the Medical Officer concurred.

As regards the question of a cooly being got at while inside the Camp it is obvious that every facility is afforded to whomsoever it pleased to communicate with coolies while inside the camp.

The outside ring fence is simply a barbed wire fence through which, naturally, free communication can be held with the outside public and money can pass if desired.

It is quite clear that the outside ring fence should be of the same material as the dividing partitions of the different sections of the camp, viz: of 10 feet corrugated iron sheets sharply vandyked at the top. This would prevent a possibility of escape by climbing the barbed wire fence and also put a stop to communication from outside. After leaving the Camp, the Committee proceeded to the Depot to observe the conditions there and came to the conclusion that even provided the suggestions made above were carried out they would be practically useless having regard to the facilities afforded to any crimper by the absence of anything like adequate protection against his wiles. It is known that coolies are despatched from the Depot as soon as possible but it is difficult sometimes for estate Kanganies from long distances to come immediately and even one whole day or night in the depot is enough time for mischief to be worked.

There is an open wire fence all round the depot not more than 4 ft. high and a cooly only has to step on the back of another one,

stooping, put his foot on the rail and jump over, or place a billet of firewood up against the fence walk up it and get over that way.

It is as much of importance that the whole depot should be enclosed with a corrugated iron fence as the Quarantine Camp, in fact more so, and until something of the nature recommended is done, both absconding from the Camp and Depot and absconding from estates of new coolies before a day's work has been done will continue.

An additional drawback to the possibility of escape from the Quarantine Camp is that should there be any infectious disease amongst the coolies there it might be diseminated all over the country.

(Sgd.) Edmund B. Prior,
E. C. Wakefield,
C. A. Buxton.
Kuala Lumpur, 16th Sept., 1915.

Sir,

I have the honour to acknowledge the receipt of your letter of 14th September 1915 the contents of which are receiving attention.

I have etc.,
(Sgd.)
for Secretary to Resident, Selangor.

The Hon. Secretary,
Klang District Planters' Association,
Klang.

Klang, 27th October, 1915.

The Secretary to the Resident,
Selangor.

Sir,

At a Meeting of the Klang D. P. A. held yesterday I was instructed to write to ask you if the Government had taken any steps in the matter of erecting corrugated iron sheets at the Camp and Depot at Port Swettenham, as requested in my letter of 14th September.

I have etc.,
(Sgd.) C. A. Buxton,
Hon. Secy: Klang D. P. A.
Kuala Lumpur, 30th October, 1915.

Sir,

In reply to your letter of the 27th October on the subject of certain fencing at Port Swettenham, I have the honour to inform you that the matter has been referred to the Controller of Labour and Principal Medical Officer for consideration.

I have etc.,
(Sgd.)
for Secretary to the Resident,
Selangor.

The Hony. Secretary,
Klang District Planters' Association,
Klang.

Kuala Lumpur, 26th November, 1915.

Sir,

With further reference to your letter of the 14th September, I have the honour to inform you that as regards the Quarantine Camp, the complaint of the Klang District Planters' Association has been referred to the Principal Medical Officer who is bringing forward proposals with a view to rendering the camp more secure.

2. As regards the Depot, the Controller of Labour, who has been referred to, does not consider that the provision of special fencing is urgently needed, but he is taking steps to improve the supervision of the coolies.

3. It has been pointed out that during the first 9 months of the current year, the escapes from the Depot numbered only 44 out of a total of 27486 labourers who passed through the Depot.

I have etc.,
(Sgd.) O. F. Stonor,
Secretary to the Resident,
Selangor.

The Hony: Secretary,
Klang District Planters' Association,
Klang.

Klang, 19th December, 1915.

The Secretary to the Resident,
Selangor.

Sir,

I have to thank you for your letter No. (II) in 4535/15 of 26th November and to inform you that the information contained therein was communicated to the members of the Klang D. P. A. at our meeting on Thursday last.

Whilst gratified to hear that steps will be taken to render the Camp more secure, the Klang D. P. A. wished to point out that the present fencing at both the Camp and Depot in no way prevents communication with the coolies from outside, which tends to induce coolies to leave estates immediately after their arrival.

The Deputy Controller of Labour, Klang, informed us that between February and the end of June this year there had been 21 cases of absconding from the Depot. As you now intimate that the total absconders to the end of September is 44, we note that there has been no decrease, but rather an increase.

Trusting that the whole subject, which we consider of great importance, will continue to have your kind attention,

I have etc.,
(Sgd.) C. A. Buxton,
Hon. Sec: Klang D. P. A.
Kuala Lumpur.
23rd December, 1915.

Sir,

I have the honour to acknowledge the receipt of your letter of 19th December 1915, the contents of which are receiving attention.

I have etc.,
(Sgd.)
For Secretary to Resident,
Selangor.

Kuala Lumpur, 1st February, 1916.

Sir,

With further reference to your letter of the 19th December last concerning the Cooly Depot at Port Swettenham I have the honour to inform you that it appears from the figures available that though there has been a small increase in the number of absconders the *percentage* of absconders has actually decreased.

2. The Resident is of opinion that nothing more can be done at present.

I have etc.,
(Sgd.) O. F. Stonor,
Secretary to the Resident,
Selangor.

The Hony: Secretary,
Klang District Planters' Association,
Klang.

Mr. *Leggatt* proposes that the Immigration Committee be requested to consider the question of the raising of the fee for locally recruited coolies to $5 per head, pointing to the waste involved in the movement of labour, and the necessity of making those who recruited locally pay something towards the original cost of recruiting.

Mr. *Macfadyen* points out that the question of the charge for registration of locally recruited coolies was not settled by the Indian Immigration Committee, but by legislation, and Government, though repeatedly invited to deal with the matter, had always refused. The matter rested ultimately with the High Commissioner, who was apparently of the opinion that the best interests would be served when a cooly could give one day's notice before leaving an estate. (Laughter.)

Mr. *Kinder* seconds Mr. Leggatt's proposal, which is carried.

Mr. *Harrison* considers that the Labour Dept. should run in people infringing the rule regarding the fee payable on the registration of locally recruited coolies, and this should not be left to planters. He proposes that the Standing Committee be asked to take up the question of the Labour Department collecting money due on the engagement of local coolies, and to prosecute, when failure to comply has occurred.

Mr. *Mooijaart* seconds the proposal and adds that it was hardly fair or reasonable, that a planter should have to bring an action against his neighbour.

The proposal is carried.

Mr. *Harvey* produces three crimping letters, which the Court had refused to accept as evidence. He would like Counsel's opinion to be taken on that point.

Agreed.

Mr. *McCulloch* remarks that he has known of cases of crimping attempted by telegrams.

Mr. *Bailey* asks that the attention of the Govt. be drawn to cases of defiance of the police, when trying to execute warrants for the arrest of absconders. These occurrences were becoming quite numerous and he instances a case of his own, where two police constables were threatened by the whole labour force of the estate, and ran away without making the arrest of 5 coolies, which they had come to effect. Yet nothing more was heard of the Police. Surely this sort of defiance of the law should not be connived in by the Govt. and he suggests that they be written to accordingly.

Agreed to.

6. CURRENCY.

The *Secretary* reports that he had interviewed the Managers of the Chartered, Hongkong and Mercantile Banks at Kuala Lumpur in accordance with instructions received at their last meeting and that all had expressed their willingness of supplying ½ cent coins, if applied to for them.

He also informs the meeting of having addressed the Under Secretary, F. M. S., as follows:

Kuala Lumpur, 1st February, 1916.

The Under Secretary, F. M. S.,
Kuala Lumpur.

Sir,

6/4962.

I have the honour to acknowledge receipt of your letter of the 3rd of January and to inform you that at a Meeting of this

Association held yesterday, I was instructed to make the necessary arrangements with the Banks, in order to carry out the offer contained in your letter.

I have, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

Mr. *Leggatt* refers back to the Under Secretary's letter of Jan. 3rd and moves that the offer contained therein, of $2,250 worth of half-cent pieces, against their request for $25,000 worth of half and quarter cent pieces, be not accepted. In this case half a loaf was not better than no bread. $2,250 worth would provide 450,000 coins, and those distributed throughout the country would not be sufficient to make the coins more popular. The coins would simply find their way back into the Treasury. The Government had no doubt had very good reasons, probably not unconnected with the position at Home, why they refused the issue originally asked for, but as they had treated the matter in a not unsympathetic manner it would be a pity to prejudice the chance they might have on some future occasion of obtaining the amount originally asked for.

Mr. *McCulloch* supports the motion, which is carried.

7. ELEPHANTS.

The *Secretary* reports the receipt of the following letter, which unfortunately had reached him only after the date of the last meeting:

Hidden Streams Estate,
Trong, Taiping.
30th January, 1916.

The Secretary,
The Planters' Association of Malaya,
Kuala Lumpur.

Sir,

"Elephants' Damage."

I regret I am unable to come to Johore in person, but I trust you will inform the meeting of the P. A. M. that most of us are of opinion that a system of Patrols is not likely to combat the nuisance successfully, particularly, as when tried before it was of little avail, perhaps chiefly because of the type of town Malay then employed.

2. I was given to understand that His Highness the late Sultan of Perak personally offered to organise a Kubu or Keddah to trap the Elephants, and it would be perhaps possible to ascertain why Government apparently saw fit to decline this generous proposal without first consulting planters interested.

I am etc.,
(Sgd.) E. L. Huson.

Mr. *McCulloch* suggests to await the results of the experiment which was now carried out by the Government.

Agreed to.

Mr. *Harvey* would like to mention that only quite recently no less than eight estates in the Kuala Lumpur District alone had suffered damage by elephants.

Mr. *Noel Fisher* adds that similar damage was being done in the Kuala Selangor District.

8. SALE OF INTOXICANTS.

Dr. *M. Watson,* having been called upon by the Chairman, to favour the meeting with his views on the subject, says he had come here, because he felt that the question of the sale of intoxicants was one of very considerable importance to the health of estates. He did not want to talk about the subject of alcohol so much as on the quality of the liquor sold to the coolies. Though the prohibition in respect of Gin had seemed to effect a good deal of improvement, there was a distinct increase in the amount of drunkenness down in the coast districts. What seemed to have taken place was that—he supposed because the supply of good toddy was short—toddy shop keepers had taken to adulterating it, and the result was disastrous in the extreme for the coolies. In some cases 'Datura' a native drug probably known to his hearers was put into the toddy. It was an intoxicant of sorts, and produced unconsciousness. He had had quite a number of cases on one estate, which only stopped when the police raided the toddy shop and told the keeper that if such a condition of things continued, his license would be dealt with. As a result of that action the cases in that instance had ceased entirely. Other cases they got were those where an acute irritant poison had either developed in toddy or had been put into it. This would produce death with the symptoms exhibited in the following case:—Case I. On 3rd December, 1915 a cooly who had drunk toddy on the previous evening was admitted into Kapar Hospital. He was in a state of extreme collapse, his temperature was sub-normal being 95°F, respiration 32, and pulse too soft and rapid to be counted. He had not passed urine since the attack came on during the previous night and there was no urine in the bladder on admission. He had diarrhoea and vomiting. He died the following day at 11.30 a.m. there being total suppression of urine. The cooly had been at work as usual on the 2nd December.

Following this came a series of cases, as follows:—

Case	II.	Admitted	6th Dec. 1915	..	Died 7th Dec. 1915.
„	III.	„	7th „	..	Recovered.
„	IV.	„	8th „	..	„
„	V.	„	12th „	..	Died 12th Dec. 1915.

This man died within 15 hours of drinking the toddy.

„	VI.	Admitted	13th Dec. 1915	..	Died 13th Dec. 1915.
„	VII.	„	20th „	..	„ 20th „
„	VIII.	„	11th Jan. 1916	..	„ 12th Jan. 1916.

He had seen other fatal cases on other estates, and his men had reported fatal cases in other hospitals.

In addition to this many cases of diarrhoea and dysentery were due to the bad liquor sold. He was constantly meeting them in his visits to hospitals. On one occasion lately, he saw 7 strong healthy coolies in a hospital with dysentery—the result of drinking toddy. They were all strong healthy men, and had never been in hospital before. It is probably no exaggeration to say that of the bowel cases (diarrhoea and dysentery) which occur on the non-malarious estates at the present time between 20 and 30 are due to the liquor sold under license.

These were bed-rock *facts,* which planters could give to Government, saying, "Here is something definite, something serious, something in which we expect you, who are in charge of the public health, to take action." All these cases were those of healthy coolies, but it must be remembered that in all cases, even where coolies had recovered, they were always peculiarly liable to relapses.

What he would suggest was stricter supervision of the sale of toddy and that all toddy shops should be regularly visited by the Medical Officers of the District, say once or twice a week, and that they should take samples of toddy and other liquors. As health officers they would be competent to analyse these themselves. Any health officer in England had to pass an examination in that, and he did not see any reason why they should not expect the same of health officers here. He would suggest that Government be approached and asked to make a systematic and strict inspection of the shops and analysis of what is sold. Planters, he was sure, would be delighted to help them in any way and to report any case that suggested that toddy shops were supplying bad liquor. That was the only way to get rid of what he regarded as a serious danger to the public health. (Applause).

Mr. *Mooijaart,* as Secretary of the Kapar Dist. Hospital, was able to bear out Dr. Watson's contentions in their entirety. He had moreover collected some figures relating to his district, which he thinks would be found interesting.

The toddy shop in Kapar, he estimates, served 5,400 coolies. The rental of that toddy shop was $2,175 per month. Working that out he found that every man, woman or working child had got to pay approximately 40 cents per month towards the license alone of the toddy shop, exclusive of the rent of the coconuts and the cost of collection. As to the latter two items, it was rather hard to calculate, as they were particularly short of coconuts round there, but he estimated that in order to pay for the rent of the coconut trees and the cost of collection, the toddy shop-keeper in Kapar in order just to cover expenses, exclusive of rent, must sell not less than a thousand bottles per day. One might reasonably expect not less than five times as much as that to be sold on days

immediately after pay day. To get five thousand bottles in good condition in a day was impossible. Collected at 6 toddy was good between 8 and 9, but very indifferent at 11.30. Collected at 11 it was not even a pleasant drink at 2. But it was simply not possible for the toddy shop keeper to get five thousand bottles by six o'clock in the evening. After the occurrence of the deaths mentioned by Dr. Watson, an old Enactment had been brought into force providing that toddy should only be sold on the premises, but it was extremely doubtful whether that had any beneficial effect. The only visible effect had been the enormous number of drunken coolies one met nowadays on the road.

As to a remedy, he suggests the reduction of the license. He did not see how the licensee could be expected to pay out such an enormous sum and sell good stuff, the cost of production being so high. There were, he thought, three possible remedies under the existing regulations.

The first was to reduce the cost of the license. Secondly, Government should arrange for a greater amount of supervision, even though that was difficult to reconcile with the first suggestion, involving a loss of revenue. Thirdly, they should enforce the rule in existence all over the civilized world, that the licensee should be punished for serving a drunken man with intoxicating liquor. There was also the question, often raised, of estate toddy shops. As for the necessity of toddy, the speaker remarks that the coolies seemed to get on remarkably well on Carey Island, where there were no toddy shops at all.

Mr. *Prior* calls attention to the harm similarly caused by cheap whisky sold in Chinese Kedais. He had a case recently, where a healthy coolie had died within 3 hours of drinking some such alleged "whisky."

Mr. *Macfadyen* thinks it ought to be emphasized, that, though the speakers so far had dealt with Klang and Kapar, it was well known to all present that this evil was general over the whole country. In face of what Dr. Watson had said as to the medical aspect, and Mr. Mooijaart's figures as to the working of the licensing system, he did not think it was possible to doubt that in that particular district the evil was a very great one. There had been suggestions made when this matter had been discussed that it was very largely a matter of talk. In face of the evidence brought before that meeting he did not think it was possible for anyone to think any longer that the question was all a matter of talk.

With regard to the action they should take, he was quite sure of one thing, that any feasible proposal they could put forward would be dealt with sympathetically. The reason he had for saying that was that for years past the Government had shown itself to be wholly sympathetic in the matter of drunkenness amongst coolies. When they asked Government to make the sale of spirits

to Tamil coolies illegal, the Government did so, and a great effect was produced immediately. It had not proved to be lasting, but even now that prohibition was worth something, and in many districts was worth a great deal. When the question of the sale of bad toddy was brought before them Government took it up seriously, and just before the war an officer was delegated to go to India and to study on the spot the Indian control of toddy. He presented a report, on which it was known Government were about to take action when war broke out and upset it. Thereafter, and presumably on account of the financial stringency existing at that time, the Government allowed themselves to fall into the practice of putting toddy shops up to tender and getting in the last cent that could be got in the way of revenue. He did not think it was necessary, after the figures Mr. Mooijaart had given, to say much on that point. It was perfectly plain that if a single toddy shop in a district where there were over 5,000 coolies had to sell as many as 1,000 bottles in a single day to cover expenses, the system was one which could not be carried on without serious abuse.

But the question of dealing with these abuses was unfortunately a very complicated one indeed. There was of course the simple expedient of total prohibition. But he would not be prepared to go to that length himself. Toddy, when in proper condition and unadulterated, was as a matter of fact a wholesome beverage and was the national drink of their coolies. Moreover, he might suggest to members of the Association that their advocacy of total prohibition of toddy would be rather a hypocritical act. (Laughter). He personally was not prepared to subscribe to wholesale prohibition of all intoxicating liquors, and to impose on the coolies a standard they were not prepared to live up to themselves. (Applause).

The first thing they ought to go for was to ask Government straight away, and without any hesitation or delay, to put an end to the system of letting the license by tender. (Applause.) That appeared so reasonable a proposal that he did not believe for one instant that Government, which had been so sympathetic on this question hitherto, could dream of refusing to consider it. It was true it would mean a heavy loss of revenue. So far as he could gather the sale of toddy was worth about a thousand dollars a day. Of course if that were to be reduced largely it would be a serious matter, but he did not believe the F. M. S. Government would hesitate to face that, as they had faced loss of revenue in the past, in the matter of opium and from other sources. That should be their first demand—to ask that this excessive amount be no longer collected from toddy.

With regard to the system of control that was a matter, it appeared to him, on which a body like theirs was not in a position off-hand to make suggestions. It was a matter of extreme difficulty. He remembered studying the report on the system in force in India,

where the method was to tax the tree. Toddy could only be drawn from trees the owner of which was licensed for the purpose and which were conspicuously marked. The vendor of toddy also paid something to the revenue, but what he paid was a comparatively small amount, so that it was scarcely true at all that his profits depended on the amount that he sold. That undoubtedly was the ideal to be aimed at. The person who paid the revenue was the owner of the tree, who was just in the position of the owner of the whisky still or brewery. The man who sold it had no greater proportion of interest in the sale of the stuff than he would have if he sold socks or pants. But the Indian system could only be worked with the employment of an army of inspectors, sub-inspectors and informers—not the kind of people they wanted to encourage. Without mature consideration, he thought it would not be wise to ask Government to have a system which could only be worked by means of informers and a very large staff of Inspectors. Whether these powers of inspection should be exercised by a special department, by the Police or by the Health Officers, was also a matter for consideration. All these questions ought to be thrashed out in a discussion in circumstances rather different from those of what was practically a public meeting. He ventured to suggest that a resolution should be put condemning in the first instance the method of collecting revenue, and asking in the second instance for a joint commission of nominees of that Association and of Government which might investigate possible methods of control over the supply and sale of toddy. (Applause).

Mr. *Jeavons* bears out the evil effects of toddy, but reminds members that these were not restricted to physical effects. His Association had received a letter from a Tamil gentleman, which read as follows:—

Sir,

I beg to acknowledge receipt of your letter of 17th inst. and to tender you my thanks for the invitation to attend the meeting on the 23rd. I much regret that I shall not be able to attend the meeting.

I have always personally interested myself in the subject of the sale of drinks to coolies and have no doubt that all well-wishing Tamils welcomed the prohibition of sale of intoxicating drinks to coolies as a great boon to their Countrymen. We all hope that the discussion at the meeting on the subject will be towards enforcing more rigidly the prohibition. The total prohibition of the sale of any kind of intoxicant to the cooly will no doubt be a blessing and I assure you that the Tamil Community will always be willing to render assistance in any movement tending to stop the coolies from drinking.

After the prohibition of the sale of strong liquors to him the cooly took to mild drinks such as stout (what he calls black beer) and toddy. The cooly drinks to get drunk and not as he says, for

the sake of health. To get to a state of drunkenness he has now to spend on stout or toddy many times the sum that he had to spend on Gin or other liquor and the result is, proverty to him.

I have heard that the cooly even now is able to get strong drinks. It is said that Contractors and Overseers buy the liquor and distribute it among the coolies. Some do so to make profits and others to please the coolies. I have not personally known a case but it is a matter worth enquiring into.

If stout and toddy drinking by the coolies cannot be entirely stopped, I consider that it is desirable that a very careful examination of the stout and toddy sold in the shops should be insisted on. I can hardly believe that a cooly ever gets unadulterated stout or toddy and if this is so, in addition to poverty the cooly suffers in health. In the case of toddy the licensee of a toddy shop cannot afford to sell toddy unadulterated owing to the very high monthly payments he has to make to the Government for his rights, but whether adulteration is injurious to health or not I cannot express an opinion. If the sale of toddy cannot altogether be stopped, the present system of letting out rights to sell toddy should be revised with a view to ensure a supply of fresh and pure toddy to the cooly.

As regards the stout perhaps nothing can be said against the stuff actually bottled in England and sent over here, but since the prohibition of the sale of strong liquors to coolies, Asiatics have begun to bottle stout locally. They import stout from abroad in barrels and bottle it here mixed with some stuff productive of intoxication. Whether this mixture of alcoholic or intoxicating substance makes the stout injurious to health or not, the fact remains that the evil of drunkenness the Government and the planting Community strive to stamp out is brought home to the cooly.

Drink is not at all considered a necessity by the Tamil and still less can it be so to the ill-provided cooly. Tamils, as a rule, however well provided for, are not fond of indulging in luxuries and my strong humble opinion is that no harm can be said to be created to the Tamil cooly by the entire stoppage of sale of all kinds of drinks to him.

I have nearly 30 years service in the Court in Kuala Lumpur and venture to state that a census of trials of Tamils for murder, will show that in a great majority of them the influence of liquor had some connection with the cause of the murder. In most cases the victims were women and the plea was infidelity but in many, jealousy lay dormant unless kindled by liquor. Some time ago Mr. Justice Sercombe-Smith in the course of a murder trial strongly remarked against the use of liquor by coolies.

Being in the Government service it may not be permissible for me to comment on this subject, but since this is not written in the spirit of criticism of any policy and is only conveyed to you for

your information in the interests of my Countrymen I do not consider it prohibited. I shall always be most willing to render any assistance in this matter.

I remain etc.,

(Sgd.) W. Cumarasamy.

As a matter of fact, drink was the cause of most Tamil cases of violence and in his District alone quite a number of recent murders had been directly traced to drunkenness.

Mr. *Hose,* in reply to a question, says that a couple of years ago he had been studying the problem in India. He did not remember the exact figures, but he thinks it safe to assume that 24 hours was really an outside limit of toddy remaining wholesome.

Mr. *Duncan* remarks that it was perfectly obvious from what had been said that the evil was a very flagrant one, and one which was doing increasing harm to the labour forces in the country. Some resolution should be put forward to embody the suggestions made, and the Standing Committee asked to take early action on that resolution. Mr. Macfadyen's suggestion as to a joint committee was an excellent one, and from what he had said there was every reason to believe that the Government would not object to that.

Mr. *Mooijaart* then formally proposes:

(1) that the system of licensing the highest tenderer to sell toddy should be discontinued forthwith

(2) that Government be invited to appoint a Joint-Committee to consider the best means of controlling the preparation and sale of toddy.

Mr. *Brodie* seconds the motion, which is carried unanimously.

9. QUIT RENT.

The *Secretary* reports the publication of Notification 1343 in the Gazette of April 20th, as follows:

No. 1343.

THE LAND RULES, 1904.

"Rent on Land which is subject to a Cultivation condition imposed under the "Country Lands (Cultivation) Enactment, 1914."

"It is hereby notified that, in exercise of the powers vested in them, respectively, by Rule 13, Table I B (ii), of "the Land Rules, 1904," of the several States, the *Residents* of Perak, Selangor and Negri Sembilan, each for the State whereof he is Resident, *have* with regard to lands already alienated in respect whereof no written application by a person having a duly registered interest in the land, for certification, under Section 3 of "The Country Lands (Cultivation) Enactment 1914, has been received by the Resident or the Collector of Land Revenue for the district in which the land is situated prior to the 1st day of January 1916, *rescinded* with

effect from the 31st day of December, 1915, such part of *Notification No. 3528,* published in the Gazette on 28th November 1914, as states that the said notification shall have effect from and including the 1st day of January, 1914, and directed that the rates of annual rent fixed by *the said* Notification No. 3528 for agricultural lands exceeding 10 acres in area which are subject to a cultivation condition imposed under "The Country Lands (Cultivation) *Enactment,* 1914," *shall have effect only from* and including the 1st day of January of *the year following the date on which written application,* by a person having a duly registered interest in the land, for certification under the said section 3 shall have been received by the Resident or the Collector of Land Revenue for the district in which the land is situated."

This he took it, was practically what they had been asking for. (Applause.)

10. WAR RELIEF.

The *Secretary* reports that since collections were begun in August last and up to the end of the financial year, March 31st 1916, they had collected $31,566, a total of £3,713, all of which had been forwarded to the London Relief Committee. Since then he had received further sums amounting to very nearly $4,000.

11. RUBBER THEFTS.

The *Secretary* reports that the Standing Committee had considered this matter, in accordance with instructions received at their last meeting and that the following correspondence had ensued with Government:—

Kuala Lumpur, 1st March, 1916.

Under Secretary, F. M. S.,
Kuala Lumpur.

Sir,

"Rubber Thefts."

I have the honour to draw your attention to the alarming rate at which the number and extent of thefts of latex and of rubber have lately increased.

Enquiries made by me have enabled me to accumulate facts from every part of the Peninsula, bearing out the seriousness of an admittedly difficult position, and my Committee, having given the matter their anxious consideration, have now instructed me to submit their recommendations, viz. that the Chief Secretary appoint a joint Committee of Government Officers and Planters, under the Chairmanship of, say, the Director of Agriculture, to consider the possibility of devising a remedy.

I have etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

Kuala Lumpur,
Federated Malay States.

No. 2 in 1254/1916.

24th March, 1916.

Sir,

I am directed to acknowledge receipt of your letter of the 1st March, 1916, and to inform you that the Chief Secretary wili be obliged if you will furnish him with such evidence as you may have as to the increase in the number and extent of thefts of Latex and Rubber.

I have etc.,
(Sgd.) W. Mackray,
for Under Secretary, F. M. S.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

Kuala Lumpur, 11th April, 1916.

Under Secretary, F. M. S.,
Kuala Lumpur.

Sir,

I have the honour to acknowledge receipt of your letter 2/1254 of the 24th of March.

I attach abstract of reports received by me from our Constituent Associations, and these I think constitute fair prima facie evidence of the increase and extension of these thefts of latex and rubber.

If further and systematic evidence is desirable, such would no doubt be called for by the Committee, the constitution of which I had the honour to suggest in my letter under reply.

I have the honour to be,
Sir,
Your obedient Servant,
(Sgd.) H. C. E. Zacharias,
Secretary.

	LOWER PERAK.	
1. Selaba	616 trees (10 yrs. old) hacked about, Latex stolen. Banjarese?	No arrests.
2. Batak Rabit	Similar thefts on five occasions Aug. 23rd 1915 1500 trs. damaged Dec. 17th „ 1400 Jan. 15th 1916 1500 Feb. 8th „ 500 Feb. 11th „ 500 5,400 trs. damaged	No arrests.
3. Sabrang	ditto. 3000 trees damaged in November. Unspecified number damaged in February. Malays?	„
4. Bernam	200 trees tapped at night, latex stolen. Javanese or Malays?	„
5. „	Numerous cases of scrap stolen off the trees.	
	ULU SELANGOR.	7 cases, sentences of 6 weeks—6 months.
1. Tanjong Malim	Between May 1915 & Jan 1916 nine cases of latex and scrap thefts; 5 Chinese, 2 Malays and 2 Tamils.	
2. Changkat Asa.	3 convictions; 2 Chinese tappers, stealing latex, 1 Tukang Ayer stealing scrap rubber.	
3. Escot	1 case in August 1915.	3 months.
4. Batang Kali	Moonlight tapping.	No arrests.
	BATU TIGA.	
1. Ebor	On three occasions night tapping.	No arrests.
2. Ayer Jernah	Night tapping frequent.	2 convictions.
3. Sungei Way	Thefts of rubber and latex frequent.	No arrests.
4. Seafield	Chinese tappers' theft of latex.	1 conviction.
5. Ashbourne	Moonlight tapping.	No arrests.
6. Seaport	ditto. 500 trees damaged.	„

	BATANG PADANG.	
1. Cluny Estate	Sheet secreted and removed from Smoke House low grade stuff added to crepe on contract for native holdings Malay.	6 months.
2. Bidor	Continued stealing of earth scrap: a Chinese thief killed and 6 Tamils charged for murder.	
3. Sungei Kruit	Earth Scrap stolen: Tamil cooly wounded, much petty stealing of latex on the boundaries.	
4. Tapah	Much petty stealing of latex on the boundaries.	
5. Hendra	Removal of earth scrap in afternoons and tree scrap in early mornings.	
6. Bikam District	Cases reported of thefts from native holdings.	
7. Sungei Klah	Stealing on boundaries: some offenders have been sentenced at Tapah Court.	
8. Sungei Taho	Tree scrap stolen in the evening on at least 2 occasions.	
9. Bedrock	The store has twice been broken into: on 2nd occasion thief caught.	1 year.
10. Narborough	Thief caught.	6 months.
11. Bikam	Adequate evidence of scrap stealing.	
12. Gedong	do.	
	KLANG.	
1. Batu Unjor	60 trees tapped at night presumably by Chinese. All trees badly damaged.	No arrests.
2. Midlands	1000 trees tapped at night. Damage estimated at $5000. Three persons received absurdly light sentences when caught in the district with rubber supposed to have been stolen in their possessions.	

3. Padang Jawa	Thefts occurred on 2 nights, some 400 trees being tapped and considerably damaged on each occasion. On 2nd occasion buckets and gouges were left behind.	No arrests.
4. Pendamaran	The estate coolies were suspected of selling rubber to a Chinese. There was a good case but spoilt by the Police sending two constables in uniform with the detective.	
	NEGRI SEMBILAN.	
1. Rembau Estate	Malay concealing latex in field.	3 months.
2. „	Malay, age 11 years concealing lump in field.	postponed.
3. „	2 Malays stole 1½ piculs Crepe from bullock cart.	1 year R. I.
4. Batu Hampar Estate	Chinese tapper concealing latex in Kerosene tin in field.	9 months.
5. „	2 Chinese tappers found on Govt. Road 11 p.m. carrying 1 bag containing 17 catties apparently No. 1 latex coagulated in hole in ground.	3 months or $50 fine.
6. Ayer Angat Est.	Chinese cooly found on Govt. Road carrying sack containing 50 lbs. Scrap Rubber.	9 months.
7. Linsum Estate	Chinese cooly caught tapping trees during afternoon and in possession of scrap, tapping knife and a parang.	1 month or $25 fine.
8. Ribu Estate	Chinese cooly caught in act of tapping. Estate manager was not advised when case came on in Court and case was apparently bungled by Police, accused being discharged.	Discharged.
9. Labu Estate	Employment of extra watchman on boundaries necessary to stop night tapping, but no arrests to date.	

10. Khartoum Est.	2 Chinese Tappers caught with primitive factory, containing acetic acid and appliances, in jungle close to estate boundary.	6 mos. R. I.
11. New Labu Est.	Malay from adjoining Kampong caught by Chinese tappers going round with bucket collecting latex from trees that had just been tapped by him, the thief being armed with a parang escaped and has not been identified. Portions of fields on this estate abounding a Malay Kampong have on several occasions been tapped during the night.	
12. Chembong Est.	Chinese estate tapper caught by estate watchman trying to hide a tin of latex in jungle adjoining his task.....	3 months or $50 fine.
13. „	Chinese cooly arrested by Malay Detective at Rembau in Rubber dealer's shop carrying a bag of rubber weighing 14 katties. The rubber was proved to be Chembong cup scrap.	9 months.
14. „	do. do. do.	9 „
15. „	A Malay man was arrested by Malay detective in rubber dealer's shop selling rubber (cup scrap) on a Malay woman's license. The Malay woman was then arrested. The Malay man had recently been discharged from Chembong as he was suspected of stealing cup scrap. The man was acquitted but the woman was fined for being in possession of stolen rubber.	Fine $200.
16. „	Chinese estate tapper caught by Malays about 8 p.m. on Govt. Rd. with bag of lump and scrap rubber.	9 months.

17. Kampong Batu	Javanese tapper caught by Mandor hiding tin of latex in clearing.	9 „
18. Spri Estate	2 Malay tappers caught by Chinese tappers taking tin of latex into jungle adjoining task. One was acquitted and the other one.....	9 months.
19. Sagga „	Factory night watchman convicted of stealing 30 lbs. sheet.	3 „
20. „ „	About 200 trees tapped during night on two occasions. Offenders not caught.	
21. Siliau „	Chinese cooly convicted of stealing scrap.	9 „
22. „ „	Trees tapped on boundary—offender not caught.	
23. Jindaram Est.	3 Chinese coolies caught—night tapping.	5 mos. R. I.

Kuala Lumpur,
Federated Malay States.

No. 2 in 1565/1916.

4th April, 1916.

Sir,

I am directed to address you on the subject of auction sales of cultivated rubber in the Federated Malay States.

2. Your Association will doubtless recollect that "The Federal Rubber Dealers' Enactment, 1909" was passed at the instance of the rubber planters. It will be observed that under Section 3 of that Enactment it is unlawful for any one to purchase cultivated rubber who is not licensed in that behalf, and also that under Section 7 (ii) no licensed dealer can purchase cultivated rubber elsewhere than at the place where the license is posted. It is apparent therefore that if this Enactment is complied with there can be no buyers at any auction—sale of cultivated rubber in the Federated Malay States.

3. The Chief Secretary invites an expression of the views of the Planters' Association of Malaya in this matter.

I have etc.,
(Sgd.) W. Mackray.
for Under Secretary, F. M. S.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

Kuala Lumpur, 8th April, 1916.

Under Secretary, F. M. S.,
Kuala Lumpur.

Sir,

I have the honour to acknowledge receipt of your letter 2/1565 of the 4th inst., which I have submitted to my Standing Committee, who instruct me to say that there seems no reason why the wording of the Enactment in question should not be so amended as to admit of Auction Sales being held. I am to add that this seems one of the points which could well be considered by the Committee, the formation of which was suggested in my letter to you of the 1st of March, 1916.

It certainly would be regrettable if the Rubber Dealers' Enactment should now merely be revived, in order to prevent the sale of Rubber by Auctions.

I have etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

The Meeting agrees to await the Government's reply to their request for a commission.

12. EXPORT DUTY.

The *Secretary* reports the Standing Committee's decision, viz. to collect all information, as made available from Reports of public Companies in respect of 1915, but that in the meantime the moment appeared in-opportune, to approach Government any further in the matter.

13. SHORTHAND REPORTS.

The *Secretary* reports that the terms offered by the Standing Committee ($25 per meeting) had not been found acceptable by the Reporter approached, and that in the circumstances the Standing Committee recommended the discontinuation of these verbatim reports.

Mr. *Macfadyen* says the fee asked for (½ cent per word) was the ordinary one obtaining out here, but it certainly seemed to work out at a greater cost than the value of their remarks. (Laughter). Speaking as one of the most voluminous speakers, he moved that such reports were not required.

Mr. *Tayler* seconds the proposal, which is carried.

14. REPORT AND ACCOUNTS FOR 1915.

Mr. *Duncan,* on behalf of the Standing Committee, submits their Report and the Accounts for the past year (vide Appendix), and invites discussion.

Mr. *Fisher* complains that only 2 out of 5 meetings during the year had been held in Kuala Lumpur, which was contrary to the understanding arrived at, whereby alternate meetings should always be held at Kuala Lumpur.

Mr. *Duncan* intimates that the new Committee would no doubt endeavour to hold six meetings during the current year, and out of these, three at Kuala Lumpur.

Mr. *Harvey* proposes and Mr. *Ferguson* seconds that the Annual Report and Accounts, as presented, be adopted.
Carried.

15. ELECTIONS.

The *Secretary* reports that out of 510 ballot papers issued in connection with the election of a Chairman for the current year, 227 had been returned to him, out of which number 136 had been cast for Mr. W. Duncan and 91 for Mr. J. D. McCulloch. Mr. Duncan had therefore been re-elected.

Mr. *Duncan* appoints Messrs. Ferguson and Harvey scrutineers, who in due course confirm the result, as announced. Mr. Duncan thanks members for his re-election.

The ballot for the Standing Committee then takes place, resulting in the election of Messrs. Macfadyen (51 votes)
McCulloch (31 „)
Munro (30 „)
Quartley (24 „)
Mooijaart (18 „)

Mr. Harvey ties with the latter, but withdraws.

Mr. *Duncan* calls for nominations for 10 members of the Standing Committee of the Planters' Benevolent Fund.

The following 10 names are put forward:

The Hon'ble Mr. E. Macfadyen.
Mr. J. D. McCulloch.
„ J. G. Cruickshank.
„ J. S. Ferrier.
„ H. R. Quartley.
„ H. E. G. Solbe.
„ V. A. Tayler.
„ Alan Carpenter.
„ A. K. E. Hampshire.
Rev. A. B. Champion.

There being no further nominations, the Chairman declares these ten duly elected.

Mr. *Duncan* proposes the re-election of Mr. Zacharias with some appreciative remarks regarding his past work for the Association.

Mr. *Macfadyen* seconds the proposal, which is carried by acclamation.

16. BUDGET.

The *Secretary* presents the following Budget for the current year:

To General Charges	$150	By Subscriptions	$5,000
„ Library	100		
„ Agricultural Bulletin, Printing and Stationery ..	900		
„ Secretary	3,000		
„ Postal	200		
„ Legal Advice	250		
„ Rent	400		
	$5,000		$5,000

Mr. *Macfadyen* proposes, Mr. *Jeavons* seconds, that the contribution per delegate be fixed again at $100.

Carried.

17. ALTERATION OF RULES.

Mr. *Macfadyen* observes that the time was rather advanced and proposes that items 15 and 16 on the Agenda be postponed until their next meeting.

Agreed to.

18. DEPARTMENT OF AGRICULTURE.

The *Secretary* reports that he had been asked to place this item on the agenda, as he understands that a motion is intended to be proposed against any change in the Directorate of the Department of Agriculture.

Mr. *Duncan* would first of all refer again to the appointment of an Advisory Committee of Planters to assist the Director of Agriculture, which Committee had commenced its duties, and he had every reason to hope that owing to the energetic manner in which its President, the Acting Director of Agriculture, had thrown himself into the work of the Department, the results obtained would be very substantial. The information they had gained about rubber since its introduction into the Peninsula was very considerable, but there still remained a good deal to learn. The knowledge acquired had been acquired individually, not by systematic investigation, which they must now have. It would not, he thought, be out of place to give expression to the view that the Department today was run on lines more up to date than some years ago. How much of that was due to the efforts of the present acting Director of Agriculture he would leave each to judge for

himself, but he thought it would certainly be a pity if the Government were to make any change in the present arrangements. He did not wish to cast aspersions upon any Director of Agriculture who had occupied that position in the past, but he thought that many of them would agree that very often—almost invariably—a scientist, however capable he might be as such, sometimes failed in administrative qualities, and that the most value from such a Department could be got under the directorship of a man who had experience of the country and of organization and administration. He hoped he would not be considered fulsome if he said that the thanks of the Association were due to the present acting Director of Agriculture. (Applause.) He would conclude by again urging the benefits to be derived from an amalgamation of the Agricultural Departments of the F. M. S. and S. S. under Mr. Hose.

Mr. *Hose* expressed his gratified surprise at hearing such kind words, especially as one came to these meetings rather on one's defence. (Laughter.) It was not for him to touch at all on questions of public policy, but he felt it would be ungracious of him not to say how much gratified he was at the kind words of the Chairman as to his short administration of the Department. It had been intensely interesting work for him, and he had been very greatly assisted in the little he had been able to do by the help of the Advisory Committee, which he thought had already more than justified its existence.

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19. VOLUNTEER CAMPS.

The *Secretary* reads the following letter, received by him from the Central Perak P. A.:

Ipoh, 19th April, 1916.

The Secretary,

The Planters' Association of Malaya,

Kuala Lumpur.

Dear Sir,

"Volunteer Camps."

Since asking you to place the above subject upon the agenda of the next general meeting of the P. A. M. delegates of this Association were invited to attend a meeting to be held at the Chamber of Commerce, Ipoh, on the 14th instant, at which General Ridout was present. At this meeting the objections raised to the scheme of monthly training Camps were fully ventilated.

The Military Authorities fully realize the necessity of granting exemptions where necessary, and undertake to favourably consider any such application for exemptions where men can prove they

cannot be spared. They are further prepared, in cases where men cannot possibly attend camp for more than a fortnight at a time, to even grant this concession in exceptional cases.

General Ridout emphasized the absolute necessity for higher efficiency in the M. S. V. R. and in view of this, and the concession enumerated above, the Committee of this Association do not desire to discuss the scheme further. Will you please have this letter read out at your next general meeting?.

I am, etc.,
(Sgd.) W. Cecil Payne.

The Meeting terminates at 1.15 p.m.

H. C. E. ZACHARIAS,
Secretary.

Exports of Rubber from British Malaya, (other than the F. M. S.)

State.	Month.	Quantity.
Johore	March 1916	lbs. 2,288,354
Kelantan	March 1916	lbs. 151,370
Kedah	March 1916	lbs. 682,724
Perlis	March 1916	lbs. 595
British North Borneo	March 1916	lbs. 309,824½
Brunei	January to March 1916	lbs. 18,195½

FEDERATED MALAY STATES.

Comparative Statement of Cultivated Rubber Exported, with Value and Duty Collected Thereon, During the Years 1916 and 1915.

Destination.	Exported during April, 1916.	Previously.	Total export during the year.	Export during similar period of previous year.	Increase.	Decrease.	Value of rubber exported, 1916.	Duty collected, 1916, to date.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	$	$ c.
Straits Settlements ...	2,449.24	10,195.35	12,644.59	8,558.41	4,086 18	...	38,280,167	
United Kingdom ...	1,280.28	3,531.48	4,811.76	4,201.82	609.94	...	14,441,264	
Continent of Europe...	...	...	....	5.00	...	5 00	Nil	
Ceylon	77.29	229.05	306.34	219.17	87.17	...	909,346	
Other Countries ...	107.65	151.42	259.07	95.07	164.00	...	761,621	
Total ...	3,914.46	14,107.30	18,021.76	13,079.47	4,947.29	5.00	54,392,398	1,412,763 60

KUALA LUMPUR,
6th May, 1916.

E. BURNSIDE,
Acting Commissioner, Trade and Customs, F.M.S.

Abstract of Meteorological Readings in the various Districts of Malaya for the month of March, 1916.

DISTRICT.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	TEMPERATURE.				HYGROMETER.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
Kelantan, Kota Bahru ...	...	141.	80.3	88.29	72.12	16.17	75.9	.810	72.9	78.	...	29.50	13.43
Pahang, Kuala Lipis ...	...	...	81.3	90.3	73.1	17.2	75.5	...	...	...	...	5.32	.94
Johore, Johore Bahru ...	...	...	...	88.32	72.81	15.51	...	...	...	...	...	12.32	...
Singapore, Kandang Kerbau	29.792	166.	82.5	88.4	74.2	14 2	76.4	.873	...	79.	...	10.68	1.54
Malacca, Durian Daun ...	29.797	149.8	81.4	88.4	71.2	17.2	79.	.930	...	87.	S.W.	9 31	1.60
Negri Sembilan, Seremban	...	148.3	79.1	88.9	71.1	17.8	75.3	.808	72.7	81.4	N.W.	12.59	2.02
,, Kuala Pilah ...	...	152.3	82.8	90 3	72.6	17.7	78.	.897	75.7	83.1	...	10.23	2.20
,, Port Dickson	...	124.9	81.7	87.5	74.2	13.3	77.4	.858	75.6	79.4	...	8.75	1.72
Selangor, Kuala Lumpur ...	29.803	139.1	81.4	90.0	71.5	18.5	76.4	.818	72.8	76.	Calm	6.09	.93
,, Klang ...	...	...	80.1	85.6	73.9	11.7	76.1	...	...	...	...	9.45	2.06
,, Kuala Selangor ...	...	..	...	88.5	74.7	13.8	...	...	...	...	...	8.59	3.20
,, Rawang ...	...	...	...	92.1	...	...	...	...	...	...	...	9.67	2.90
Perak, Telok Anson ...	...	...	81.16	92.	71.	21.	76.73	.862	...	82.	...	19.17	4.44
,, Ipoh ...	...	...	82.05	95.	70.	25.	76.43	.836	73.26	77.	...	11.24	2.03
,, Taiping ...	...	160.	81.11	92.	73.	19.	77.02	.875	...	83.	...	26.20	3.33
,, The Cottage ...	...	...	...	...	...	...	...	...	...	...	...	16.26	2.24
,, Parit Buntar ...	...	...	83.12	94.	72.	22.	77.97	.888	...	79.	...	13.28	3.05
Penang, Georgetown ...	29.791	144.1	84.	90.8	73.6	17.2	78.	.967	78.2	76.	N.	7.57	1.55
Kedah, Alor Star ...	...	...	...	...	...	...	...	...	...	...	...	7.59	1.48
Perlis, Perlis ...	...	...	...	91.29	72.87	18.42	...	...	...	...	...	3.75	...